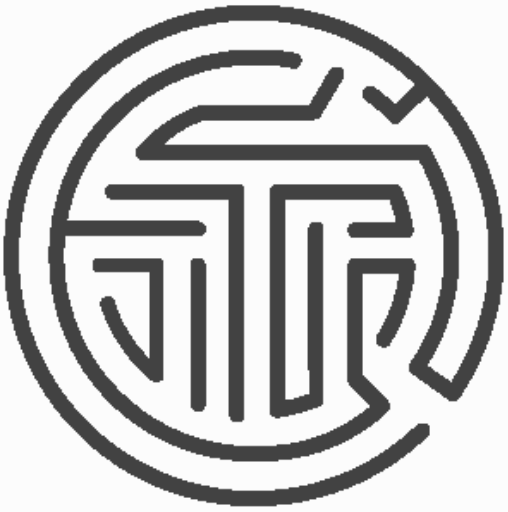

THE RETA INITIATIVE: YEAR 5 EVALUATION REPORT

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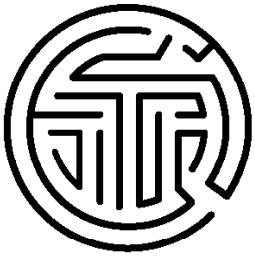

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THE RETA INITIATIVE: YEAR 5 EVALUATION REPORT

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TABLE OF CONTENTS:

EXECUTIVE SUMMARY II

INTRODUCTION 1

METHODS 7

IMPACT 12

SUSTAINABILITY 37

CHALLENGES AND OBSTACLES 58

THE RETA PROFESSIONAL DEVELOPMENT MODEL 61

EXECUTIVE SUMMARY

The Regional Educational Technology Assistance (RETA) initiative has provided professional development opportunities to educators throughout the state of New Mexico for the past eight years. While the initiative's first three years were funded through small grants from local sources, the program received substantial funding for a five-year period, ending September 30, 2003, from the Technology Innovation Challenge Grant (TICG) program of the U.S. Department of Education. The program has offered professional development opportunities to educators across the state of New Mexico providing a constructivist, hands-on, learner-centered approach to the integration of technology into academic content and has considerably expanded its reach as a result of the TICG funding. The program has developed regional expertise among classroom teachers who can act as peer technology mentors in their communities; addressed issues of education technology policy; developed teacher-authored curriculum materials, linked to national and state standards, that incorporate technology into a range of content areas for educators working with students in grades K through 12; provided resources to pre and inservice teachers, and to administrators through partnerships with institutions of higher education at several Regional Resource Centers throughout the state; and supported other educational endeavors through partnerships and collaboration. This summary outlines findings from the Year 5 evaluation report on the RETA program.

RETA has increased the number of teachers it has reached annually for the past five years. Beginning in 1998 the program provided services to approximately 350 teachers. This past year the program reached 3,919 participants across the state, and served teachers in 82 of the state's 89 school districts as well as in Bureau of Indian Affairs schools and in private and parochial schools. The RETA program has also established six regional resource centers (RRCs) across the state that provide workshops and targeted professional development for schools and districts in regions distributed throughout the state.

RETA participants

RETA staff made a concerted effort to attract and retain participants and instructors who represented the ethnic and linguistic diversity the student population served by New Mexico's schools. The program was successful in attracting Hispanic/Mexican American teachers in the same numbers as are found in the general teaching population. In addition the program was able to attract a significantly larger percentage of Native American teachers than are represented in the teaching population. Those teachers participating in RETA are generally upper elementary teachers who have on average 12 years of teaching experience. The RETA program has a large majority of female participants which is reflective of the general teaching population.

Findings related to teacher change and technology adoption

During the past five years the RETA program has shown consistence in its ability to support teacher change in a number of areas related to the integration of technology into the school setting. Data collected through pre and post surveys and observations over a five year period have

shown statistically significant increases in teacher behavior in the following areas:

- Assisting colleagues with software and hardware problems
- Brainstorming issues related to computers
- Developing curriculum that includes computers
- Participating in proposal writing for funds supporting technology integration
- Participating in professional conferences through either attendance or making presentations
- Using technology tools such as the Web, email, spread sheets, database software, CDROM reference materials, and other education software applications such as Inspiration or PowerPoint with their students
- Engaging students in project based work
- Engaging students in presentation of student work using technology
- Engaging some or all students in a technology-related activity rather than just one.

Findings related to gender and ethnicity

The data also show that the RETA program assists in leveling differences in reported technical experience among genders. Female RETA participants made significant strides in closing the gap between their own and their male colleagues' reporting of their experience level with technology.

RETA has also had an impact on the professional experiences of Native American participants who show the largest gains in areas, such as assisting colleagues with software and hardware, brainstorming issues related to technology, and designing curriculum that uses computers.

Findings related to the RETA professional development model:

Data over the five-year period also shows that repeat participation in RETA workshops increases the opportunity for change in the above areas for teachers. Those teachers who repeated RETA workshops for more than one year showed a greater rate of change with each successive year in all areas listed above.

RETA across the state

The RETA program has been highly successful in working with the New Mexico State Department of Education (NM SDE) to advocate for the role technology can play in the lives of children and teachers. RETA participants and staff have informed policy at the state level and have supported state initiatives that impact technology planning, teacher training and standards development.

RETA resources

The RETA program has developed a range of curriculum modules that are available to teachers via the RETA website and can be accessed through a curriculum database. These modules model the integration of technology into broad array of content across all age groups. RETA has also partnered with a local public television station, KNME, and prepared a series of curriculum modules that incorporate original source material including images and documents that support learning about New Mexico history and culture. In addition, RETA has partnered with the NM SDE to develop a series of web- and CD-ROM-based materials to address the state's seventh and tenth grade requirements in New Mexican history.

RETA beyond 2003

The RETA staff has developed a model of localized program delivery that is supported jointly by state and district funds and will allow the program to continue beyond the completion of funding from the TICG. RETA has also partnered with the state's new Reading First program to provide regionally distributed technical assistance to schools engaged in using technology to administer and interpret student assessments.

Technology Innovation Challenge Grant goals

The RETA project identified five goals in its proposal to the TICG:

- Goal 1: Professional development for preservice and inservice teachers
- Goal 2: Advocacy development
- Goal 3: Development of regional resource centers at institutions of higher education
- Goal 4: Curriculum development and dissemination
- Goal 5: Sustainability

Over the five years of this project, the RETA program has met each of these goals.

Program challenges and the RETA model

The RETA program has encountered a range of challenges to disseminating quality professional development across a large rural state. Challenges included the following:

- travel logistics
- technical concerns
- recruitment issues
- funding concerns
- shifts necessary to accommodate the transition from funded project to fee-for-service program

Despite these challenges the RETA program has maintained a commitment to change and adaptation to the needs of participants. The RETA program has attracted a large loyal base of educators and administrators who are committed to using all tools at their disposal to support student learning and who see the RETA program as a valuable resource in this undertaking. Participants and staff believe that the success of RETA lies in its model of professional development, which incorporates commonly recognized standards for professional development, such as those recommended by the National Staff Development Council,[1] and also includes the following:

- The expectation that all educators are professionals and must continue their own learning within their field to remain relevant and effective;
- The expectation that educators are adequately compensated for their time spent providing professional development to peer teachers;
- The belief that "expert" teachers require ongoing opportunities to expand and hone their skills and knowledge base through professional development activities that meet their needs; and
- The expectation that educators from diverse backgrounds and geographic regions can come together to form a community of learners and advocate for technology within the context of meeting student needs.

[1] National Staff Development Council, (2000). http://www.nsdc.org/educatorindex.htm

INTRODUCTION

The Regional Educational Technology Assistance (RETA) initiative has provided professional development opportunities to educators throughout the state of New Mexico for the past eight years. While the initiative's first three years were funded through small grants from local sources, the program received substantial funding for a five-year period, ending September 30, 2003, from the Technology Innovation Challenge Grant (TICG) program of the US Department of Education. The program has offered professional development opportunities to educators across the state of New Mexico, providing a constructivist, hands-on, learner-centered approach to the integration of technology into academic content. The program has considerably expanded its reach as a result of the TICG funding. The program has developed regional expertise among classroom teachers who can act as peer technology mentors in their communities; addressed issues of education technology policy; developed teacher-authored curriculum materials, linked to national and state standards, that incorporate technology into a range of content areas for educators working with students in grades K through 12; provided resources to pre and in-service teachers, and to administrators through partnerships with institutions of higher education at several Regional Resource Centers throughout the state; and supported other educational endeavors through partnerships and collaboration. This summary outlines findings from the Year 5 evaluation report on the RETA program.

The RETA program was established to serve a population of educators who are often over looked and underserved by high quality, continuous professional development opportunities. Educators with the state of New Mexico are widely dispersed across a large geographical region, and access for these educators to institutions of higher education is limited for most. New Mexico schools serve a student population that exceeds the nation's rate for children living in poverty by a full 10 percentage points[2]. Educationally, the state has a large student population considered at-risk for failure due to socio-economic status, language difference and cultural difference. Thirty-four percent of New Mexico residents speak a language at home other than English (compared with 18% nationwide) and according to the latest census data, 15% of New Mexico's 15 – 19 year olds are high school dropouts, a rate that is 6% higher than the national average. [3] In addition, New Mexico ranks highest in special education referrals rates among all states.[4]

Working within this context, RETA staff have targeted geographically dispersed locations for the provision of the program's workshops, and have made an effort to identify educator instructors that are working in, and members of, these communities to provide professional development at a regional level to peer teachers. RETA's efforts have coincided with the implementation of new federal standards that require increased training and certification for teachers and also for teaching aids[5] as well as with expectations outlined in the recent No Child Left Behind act that require teachers to have some knowledge of technology as it relates to instructional practice, and also as

[2] US Census, 2002 report from American Community Survey.
[3] US Census, 2002 report from American Community Survey.
[4] New Mexico State Department of Education, 2002, Proposal to Federal Reading First Program.
[5] Recent studies show that a skilled and prepared teacher is a key factor in students' early and ongoing academic success (Hayes & Salazar, 2001; Land & Moustafa, 2002).

it serves the assessment and data-driven decision-making process. The RETA program has been able to play an important role in this effort through making its workshops available for graduate credit, through providing ongoing professional development activities to educators at all levels of technical experience, and through preparing educators to be confident in their use of technology in whatever ways best serve students' academic needs.

The RETA program was designed to meet the multiple and unique needs of New Mexico's teaching population by providing the following:

- Locally available professional development addressing specific concerns of schools and teachers
- Opportunities to earn graduate credit in a local setting
- Guidance from experienced teachers in integrating technology
- Guidance from experienced teachers in pedagogically appropriate practice
- Opportunities to network and develop a community of peers
- Opportunities to provide students with access to resources beyond the school and community that address the cultural diversity of New Mexico
- Peer support for participation in other professional development experiences and opportunities such as:
  - participating in professional conferences
  - providing professional development to school or district peers and community members
  - pursuing additional professional development opportunities
  - developing school or district programming
  - writing grants for classroom, school, or district wide programs

The program has been able to remain relevant within the changing education technology landscape through a continual process of internal review and evaluation. This process allowed the program to evolve in response to issues raised by participants and program instructors, and in response to the changing and rapidly growing assortment of technology tools and software available to schools and teachers. While multiple forces at work across the state and country over the past several years have influenced, advanced and contracted the role of technology in educational settings, the RETA program has consistently supported educators in expanding their own knowledge and practice as educators and as learners engaged in the work of helping children grow and develop.

The traditional focus of professional development in technology has been on showing teachers how to operate equipment rather than how to integrate the technologies into instruction (McCannon &

Crews, 2000).[6] Educators need to learn how to use technology in context, matching the needs and abilities of learners to curriculum goals (Kent & McNergney, 1999).[7] The presidential report on the use of technology in K-12 education describes technology as supporting a pedagogical shift in education toward the constructivist paradigm (Kent & McNergney, 1999). This shift away from traditional methods of instruction is based on the premise that it is learning with, not from or about, technology that makes computer-based technologies important tools in a constructivist learning environment (Boethel & Dimock, 1999).[8]

RETA has taken on the challenge of providing teachers with the skills they need to use and integrate technology (Mandinach & Klein, 2000)[9]; however much of the research available has not yet caught up with the expectation that teacher's use of technology impacts students' education experience. RETA was based on the expectation that educators must learn with technology, and through that process, learn about technology and perhaps about the role that it can play in introducing teachers and their students to aspects of a constructivist approach to teaching and learning. A recent review of studies (Richardson, 2003) identifies a number of characteristics of research-based professional development that supports the approach taken by the RETA program in its effort to view technology through a holistic school-change lens. According to Richardson's review, successful professional development efforts should provide extended experiences, that include follow-up; foster collegiality; encourage agreement on goals among participants; provide access to adequate funds and materials; develop buy-in among participants; start where educators are in terms of beliefs and practices; and use an outside facilitator for staff development activities.[10] The RETA program incorporated these characteristics from its inception, following the National Staff Development Council guidelines for exemplary professional development.[11]

Each of these aspects has been integrated into the RETA model and has contributed to the successful impact RETA has had on teachers use of technology, and how teachers have changed their students' use of technology. Our analysis of data below show significant changes in teacher behavior in a range of areas from increased levels of participation in grant writing for technology programs, to increases in troubleshooting hardware and software problems for colleagues. Yet despite these shifts the evidence for student change, beyond anecdotal teacher reports, has been difficult to locate and assess. Recent studies have begun to explore ways of capturing student impact from technology use. In Knezek and Christensen's (2002) review of national and international qualitative studies of new information technologies in the lives of teachers and students they found: "Psychological impacts of appropriate technology integration appear to emerge within a relatively short time frame in students at the primary school level. For example, positive impacts on the perceived enjoyment and importance of computers appear to occur within the first three months

[6] McCannon, M., & Crews, T. (2000). Assessing the technology training needs of elementary school teachers. Journal of Technology and Teacher Education, 8 (2), 111–121.
[7] Kent, T., & McNergney, R. (1999). Will technology really change education? Thousand Oaks, CA.: Corwin Press, Inc.
[8] Boethel, M., & Dimock, K. (1999). Constructing with technology: A review of the literature. Southwest Educational Development Laboratory. Austin, TX.
[9] Mandinach, E., Cline, H. (2000) It Won't Happen Soon: Practical Curricular, and methodological problems in implementing technology-based constructivist approaches in classrooms. In Lajoie, S (Ed.) Computers as cognitive tools, volume two: No more walls. Lawrence Erlbaum Associates: New Jersey.
[10] Virginia Richardson, (January, 2003) The Dilemmas of Professional Development: Why do so few staff development programs incorporate features that research has shown to be effective? Phi Delta Kappan Online.
[11] (get citation for NSDC)

of exposure to computers in school[12], and may in fact take place within the first 6 weeks of student exposure.[13] A similar positive influence was found in a study of elementary-level Japanese students who showed increases in motivation and study habits.[14]"

These findings are echoed in interviews and informal conversations among RETA participants who often state that the technology they begin to introduce to their students as a result of RETA participation is often best received by those students who are academically the least successful. These students begin to show heightened interest and engagement in classroom activities that had previously resulted in frustration when done without the assistance of technology.

This review of research identified other possible areas of measurable impact regarding technology and student impact that bear further examination including a study of 100 school districts in Texas where outcomes on standardized achievement tests could be accurately predicted by examining levels of technology expenditures,[15] and a study that found measurable positive impact ($p<0.03$) of high-versus low-technology integrating teachers on student vocabulary, reading and writing standardized test scores.

While no measurable quantitative evidence was found in this evaluation regarding student change based on teachers' RETA participation, there is some reason to speculate that students may have experienced positive changes in attitudes towards technology and perhaps in their motivation to work with technology on academic tasks. The same study mentioned above also found that teachers' "competence and confidence with information and communication technology is the principal determinant of effective classroom use by students."

It is this finding that underscores the goals of the RETA project. Guiding educators to be both competent and confident in their knowledge and ability to use and integrate technology in a learning setting gives these educators an additional powerful tool to use in the classroom. It also gives teachers a foundation of knowledge that can help them to acquire new skills and explore new uses for the many technological tools that are developed every day. Teachers must be technically knowledgeable in order to participate in today's schools. Demands are placed on educators to use technology to support academic curriculum, assist in the inclusion of students with disabilities, document assessment results, and analyze assessment and test data. Teachers must be given the chance to learn how to use technology in multiple ways so that they can best serve their students, and, as we see from recent studies, those teachers who are best prepared, through sound, research-supported professional development practice, are most likely to implement effective classroom use of technology in their schools.

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[12] From a study by Collis et al, 1996 in G. Knezek and R. Christensen (2002). Impact of New Information Technologies on Teaches and Students, Education and Information Technologies. 7:4, pp 369-376

[13] G. Knezek and R. Christensen (2002). Impact of New Information Technologies on Teaches and Students, Education and Information Technologies. 7:4, pp 369-376

[14] Collis et al., 2000 in G. Knezek and R. Christensen (2002). Impact of New Information Technologies on Teaches and Students, Education and Information Technologies. 7:4, pp 369-376

[15] Knezek et al., 2000a in G. Knezek and R. Christensen (2002). Impact of New Information Technologies on Teaches and Students, Education and Information Technologies. 7:4, pp 369-376

Below are findings from the Year 5 evaluation of this program's funding through the TICG, as well as formative evaluation findings from Years 1 – 5. In addition, this document includes sections addressing the following:

- Structured observations
- Teacher retention
- Student achievement
- Regional Resource Center
- The RETA website
- New Mexico education resources on the Web
- RETA online
- RETA work with administrators
- RETA partnerships
- RETA sustainability
- RETA participation in Technology and Education Policy
- Obstacles and challenges
- The RETA Professional Development Model

Year 5 Evaluation

In 1998 in its Technology Innovation Challenge Grant proposal, the RETA Program set out five key goals it hoped to accomplish in the state of New Mexico. The goals of the RETA Program were the following:

- Goal 1. *Professional development for preservice and in-service teachers:* To expand the statewide network of educators skilled in the effective use of technology to support educational goals.
- Goal 2. *Advocacy development of administrators and policy makers:* To develop the capabilities of administrators and policy makers to become technologically literate educational leaders.
- Goal 3. *Development of regional resource centers (RRCs) at institutions of higher education:* a) to sustain the professional development opportunities for educators in their local regions, and b) to work with preservice and inservice faculty to understand how to modify their instruction to reflect and model effective integration of technology.
- Goal 4. *Curriculum development and dissemination:* To develop and disseminate curriculum models and web-based materials that reflect exemplary practices and are explicitly linked to local, state and national standards.

- Goal 5. *Sustainability:* a) To create a critical mass of educators who can effectively deliver instruction to their peers on a continuous formal and informal basis; and b) to institutionalize the goals and processes of this project under the auspices of the NM SDE.

The program has been able to meet each of these goals during its five-year TICG funding period.

METHODS

Over the five years of our evaluation of the RETA program, we have utilized a wide array of methodological approaches to gather both formative and summative data about the program.

Methods used in all five years of the program

Pre and post surveys of participants and instructors

In each year of the RETA program, CCT evaluators administered pre and post surveys. These web-based surveys were completed by RETA participants at the first and last workshops they attended. Because individual workshop schedules vary considerably from location to location, collecting all pre and post data simultaneously was not possible. Most presurveys were completed between October and December of each year, and most post surveys were completed between March and May of each year. In the year five evaluation, we receive a total of 825 pre surveys and 549 post surveys. We were able to match 364 pre and post surveys, representing a 82.5% response rate for the pre survey.

Interviews with participants and/or instructors

In every year of the program, CCT evaluators conducted interviews with RETA instructors and participants. In each year, the choice of interviewees and the interview protocols were tailored to capture different kinds of information about the program. In the initial years we focused more heavily on interviewing instructors in order to gather data about their background, experiences in the program and the challenges and successes they encountered while facilitating RETA workshops and integrating technology into their classrooms. In the later years of the program, the interviews were geared more toward gathering data on RETA participants' experiences in the program and the challenges and successes they encountered while attempting to integrate what they learned in the RETA workshops into their classrooms.

Observations of RETA instructor professional development activities

In every year of the evaluation, CCT evaluators attended professional development sessions designed to provide RETA instructors with instruction in the use of new technologies, software and RETA curricula. These meetings, which have been held twice yearly over the course of the initiative, were also used to provide instructors with the opportunity to give feedback to program staff on their experiences in the program, make suggestions for improvements and to offer those instructors who chose to participate the chance to work in small groups to develop and revise RETA workshops. At these sessions, CCT evaluators observed the professional development session, collected documents related to the sessions and interviewed instructors.

Review of RETA curricula

In each year of the program, we reviewed the curricula and online materials developed by RETA program staff and RETA instructors in order to understand both the scope and the depth of the content provided in the RETA workshops and the pedagogical methods supported by the curricula.

Collection and analysis of data collected by RETA program staff

Over the five years of the initiative, RETA staff have provided CCT evaluators with a great deal of data related to the program, including numbers of instructors and participants, results of individual workshop evaluations, and information about program staff activities, such as conference presentations and presentations to state and national legislative committees.

Interviews with program staff

In each of the past five years, we conducted regular interviews with RETA program staff in order to provide staff with opportunities to reflect on the lessons they learned through implementing the program, to inform us of a wide variety of partnerships and programs that developed over the years, and to tell us about future plans for the program.

Methods Used in Different Years of the Program

Along with the methods described above, we tailored our evaluation each year to investigate different aspects of the program as it developed over time. In order to effectively and responsibly evaluate a program as complex as a statewide professional development initiative, it is important to first examine whether the program is being implemented in the manner in which it was designed. Only when those data have been collected, analyzed and reported back to the program staff, and program staff have had the opportunity to act on that information, can program impact be appropriately evaluated. In the first three years of our evaluation, we closely examined the implementation of the program in order to understand how the model was translated into practice. We then provided feedback to program staff, who were able to make adaptations to improve and expand the program. In the last two years our evaluation has focused more on understanding the impact the program has had on the educational technology landscape of New Mexico at the classroom, district and state levels. The evaluation methods we employed at varying stages of the initiative included the following:

Methods for Implementation Evaluation

RETA instructor workshop experience survey

In the first year of the program, a short exploratory survey was administered to RETA instructors during the annual Instructor Materials Development (IMD) meeting. This instrument probed for preliminary data on the impacts of the RETA experience on instructors themselves and speculatively on participants. The survey also served as the basis of a focus group discussion on the diversity-responsiveness of the RETA curriculum and experience.

Diversity focus group

This focus group was held at the instructor professional development session at the end of the first year of the program in order to obtain input from RETA instructors about the ways in which the program could meet its goal of supporting and promoting diversity among instructors, participants and the students they teach.

RETA participant workshop evaluation

In the first three years of the program, evaluation forms were mailed to RETA participants' homes, accompanied by a self-addressed stamped envelope. These surveys asked questions that differed from those on the pre post survey. In particular, these surveys asked for feedback on specific workshops and on the instructors. These surveys were mailed to all RETA participants, including those who did not complete the six workshops, so the pool of respondents was somewhat different from the post survey pool of respondents.

RETA instructor self-assessment survey

In Years 2 and 3 of the program, instructors were asked to complete an instructor self-assessment. This instrument was administered through the RETA website. An email message was sent to instructors on the RETA listserv asking them to complete the questionnaire. This instrument, which paralleled the Participant Workshop Evaluation, asked instructors to assess their own skills and knowledge, comment on their workshop implementation and suggest ways to improve the project. Instructors were also asked to identify other technology activities with which they are affiliated as instructors or trainers as a result of their experience with RETA.

Case studies of RETA instructors

For the first three years of the program, CCT followed a group of instructors—visiting their schools, observing their classrooms, observing the RETA workshops they conducted and interviewing them—in order to gain an in-depth understanding of the impact of the RETA experience on instructors' professional lives.

RETA workshop observations

During the first three years of the program, CCT evaluators conducted observations of RETA workshops to see how the RETA workshop curricula were implemented and how RETA instructors modeled the pedagogical practices advocated by the RETA program.

Interviews with Regional Resource Center coordinators

In Years 3 and 4 of the program, we conducted interviews with Regional Resource Center coordinators to find out about the activities of these centers and the coordinators' plans for the future of the centers.

Methods for Impact Evaluation

Structured classroom observations

CCT evaluators created a structured classroom observation instrument, adapted from an observation instrument developed by the Apple Classroom of Tomorrow (ACOT) program and the Milken Professional Competency Continuum (PCC) survey. Every five minutes, observers recorded what was happening in the classrooms across various dimensions, including type of classroom activities, student and teacher roles, and technology and applications used. These data were then analyzed statistically so that change over time and differences between novice and experienced teachers could be measured. Qualitative observational data were recorded as well. The items on the structured observation were also included on the pre and post surveys. We compared the results of the observational data with the analysis of the pre and post surveys to determine whether self-reported and observed trends on these items were consistent. In the fourth year of the program, we observed 10 RETA participants three times over the course of the year. In the fifth year of the program, we observed 16 teachers two times over the course of the year.

Interviews with state education policy-makers

In the fourth year of the program, we conducted interviews with New Mexico policy-makers, including a state senator who chairs the state education committee, the superintendent of education of New Mexico and NM SDE staff, in order to gain their perspective on the impact that the RETA program has had on education technology policy and practice throughout the state.

Interviews with technology leaders

In the fourth year of the evaluation, we conducted interviews with RETA instructors who have become educational technology leaders in their schools and districts.

Review of district technology plans and proposals to the Technology Literacy Challenge Fund (TLCF) program

In the fourth year of the program we asked a graduate student from New Mexico State University to review two years worth of district technology plans and proposals written by districts requesting funding from the state's TLCF program. The purpose of the review was to gauge the extent and nature of the impact the RETA program has had on districts' educational technology planning, and to understand how the RETA program model may be having an influence on the kinds of educational technology programs designed by school districts.

Administrator workshop focus group

In the fifth year of the program, we conducted a focus group with administrators who completed the RETA program's first series of administrator workshops in order to gather information on administrators' experiences in the program and how they have translated their knowledge into their practice.

Online workshop facilitation focus group

In the fifth year of the program, we conducted a focus group with RETA instructors who completed the RETA program's on-line workshops in order to gather information on their experiences with this method of instruction and workshop facilitation.

Collection and analysis of RETA Regional Resource Center (RRC) data

From Year 2 to Year 5, CCT evaluators collected and analyzed the data provided by the coordinators of RETA's Regional Resource Centers. These data included the numbers of people served by the centers, the kinds of people served by the centers (in-service and preservice teachers, administrators, parents, educational staff), descriptions of the workshops and resources provided by the centers and strategic planning by the centers.

IMPACT

RETA Demographics

The RETA program has grown over the years, reaching more and more teachers and providing more and more workshops to educators across the state of New Mexico (see Table 1). This year, despite the fact that the program had slightly fewer instructors, the program was actually able to increase the number of workshops it offered. In part, that was because this year RETA began offering on a fairly large scale online workshops as part of the regular workshop experience. The RETA RRCs also significantly increased the number of learning experiences they offered to educators in the regions they serve.

TABLE 1. NUMBER OF TEACHERS IN RETA AND NUMBER OF RETA WORKSHOPS OVER FIVE YEARS

	1998 - 99	1999 - 2000	2000 – 01	2001 - 02	2002 - 03
RETA Instructors	45	65	85	106	94
RETA/RRCs	4	6	6	6	6 to 3
RETA Sat. Workshops	140	168	312	297	388 (332 face to face, 56 online)
RRC Sessions	42	95	159	189	263
Total Number	182	263	471	490	651
RETA Sat. Workshop Participants	244	648	890	940	1254
RRC Primary Participants	Info not collected	Info not collected	1,440	1,748	1,920
Participants Conference Presentation	Info not collected	Info not collected	Info not collected	339	17 presentations 645participants
Total Primary Participants	923	2,118	2,529	3,027	3,919
NM Districts Served	34	60	66	76 SD E3 BIA	82 SDE 5 BIA

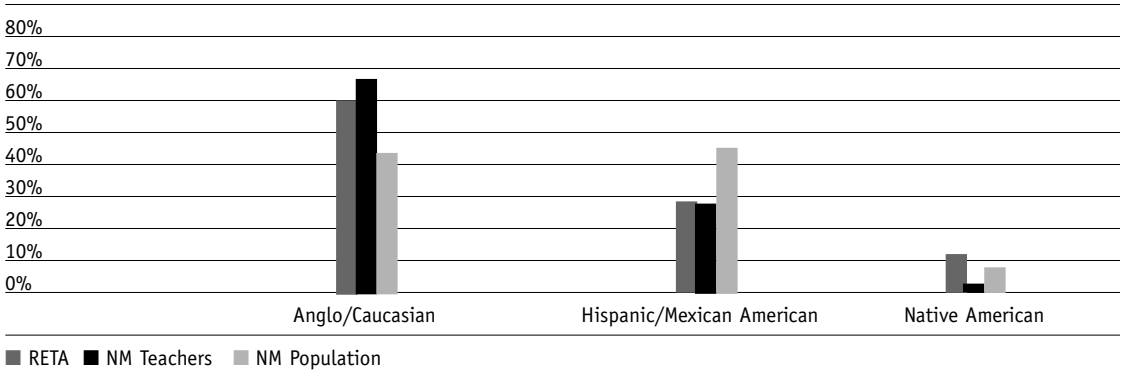
RETA teachers are a rather experienced and diverse group of educators. The average RETA teacher has taught for 12.4 years, which is about a year more than the average for New Mexico teachers. They teach a wide array of subjects and grade levels. By far, the largest group (34%) of teachers in the program indicated on our survey that they teach in self-contained classrooms, which usually means they are elementary school teachers. However, RETA participants identified themselves in every other possible category of educator, including teacher aide, administrator, support staff, special education, and all of the other subject areas. Interestingly, the percentage of RETA participants who are female is much higher than the percentage of NM teachers who are female (see Table 2). The number of female participants actually has grown more substantially than the number of male participants in each year of the program.

TABLE 2. GENDER

	RETA PROGRAM TEACHERS	NEW MEXICO TEACHERS	STATE OF NM
Female:	91%	75%	51%
Male:	9%	25%	49%

Ethnically, RETA participants are roughly representative of the teaching population, and of the population as a whole (see Figure 1). There are fewer Anglo/Caucasian teachers in the RETA population than in the general teaching population, and the same percentage of Hispanic participants in the program as there are in the teaching population. As has been the case in the past three years, the RETA program has a much higher percentage of Native American teachers participating in the program than there are in the New Mexican teaching population. In fact, the percentage of Native Americans in RETA (11%) is actually higher than the percentage of Native Americans in the state of New Mexico. The RETA program staff made a special effort to recruit Native American teachers, and to target school districts with large numbers of Native American students. These data show that the program's goal to reach this traditionally underserved population was realized.[16]

FIGURE 1 : RETA PARTICIPATION BY ETHNICITY, COMPARED TO ETHNICITY OF NM TEACHING POPULATION AND NM GENERAL POPULATION



A fairly substantial number of RETA teachers have elected to repeat the workshop series at least once, and in some cases for multiple years. Thirty-four percent of survey respondents this year indicated that they had been involved with the program in the past. Over half of this group had been involved with the program for two or more years. RETA participants often come from schools with which the RETA program already has a presence; 86% of the 2002-03 participants reported that at least one other teacher in their school had attended the workshops.

[16] Because the percentages of Asians and African-Americans in all three categories—RETA, the NM teaching population and the NM general population—are so low, they are not represented in these results. However, the percentage of both groups in RETA is similar to that in the teaching population and in the state (approximately 1-2%).

RETA teachers overall have very good technology access. Ninety-two percent report that their students have access to a computer lab, and 94% say that their lab computers have Internet access. The mean number of computers that RETA teachers have in their classrooms is 4.89, and 94% of these teachers have access to the Internet from their classroom.

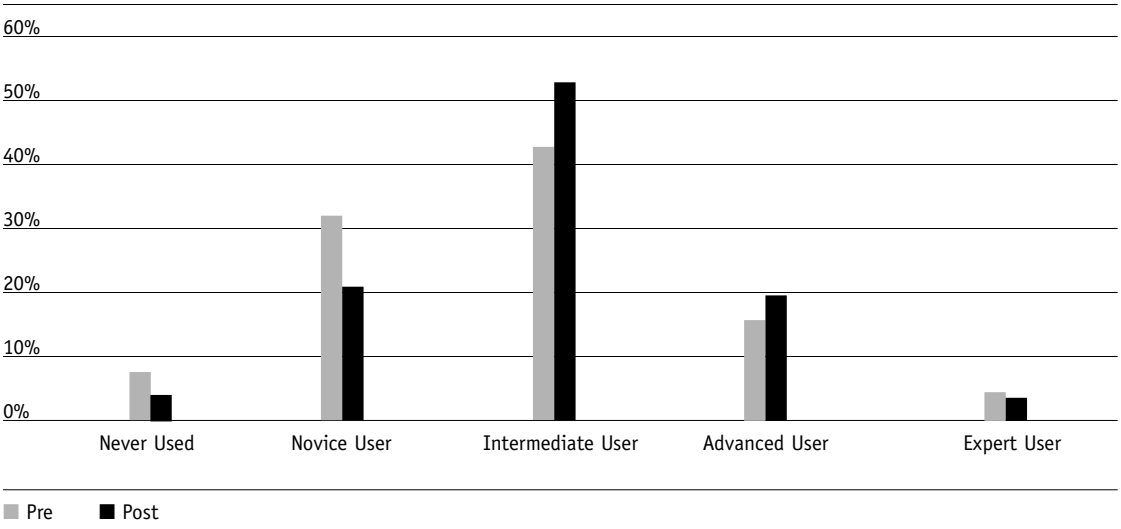
Findings from the pre/post survey

Each year of the program, we have administered pre/post surveys to RETA participants and instructors at the first RETA workshop and the last RETA workshop. First we will present our specific findings from this year's evaluation. Then we will present our findings on those questions we have asked a number of years in a row.

Teacher skill and use of technology

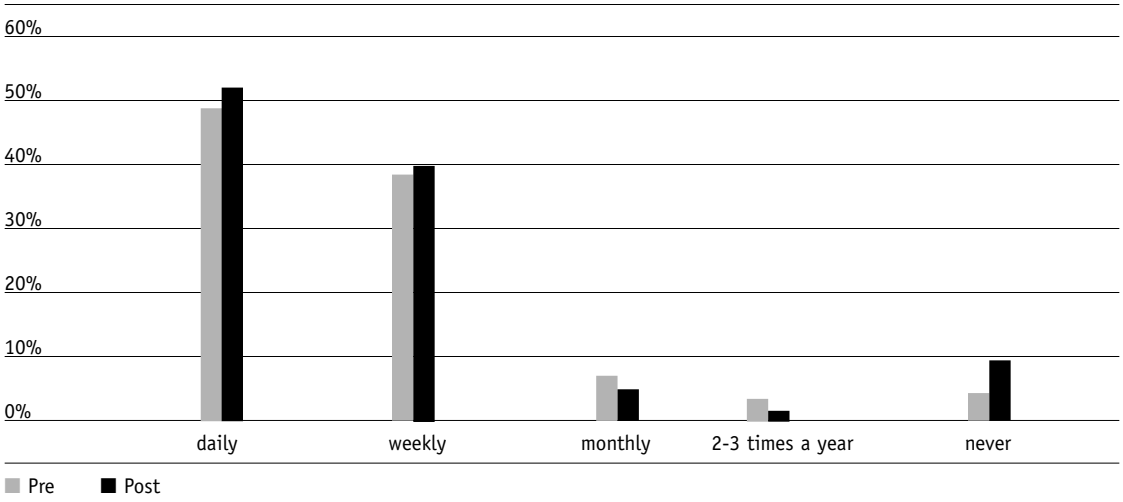
The pre and post surveys indicated that RETA teachers changed their self perceptions and teaching practice between the first RETA workshop and the last. For example by the end of the 2003-04 workshop series, RETA teachers rated themselves significantly higher in their experience integrating technology than they had in the pre survey (see Figure 2). The most common transition occurred among those teachers who initially rated themselves as novices in technology integration, but who came to rate themselves as intermediate users by the end of the workshop series. This suggests that, although RETA often attracts those teachers who already have some technology skills and want to expand them further, the program has also helped a fair number of teachers who felt rather insecure in their technical abilities gain enough confidence to no longer consider themselves technology novices by the end of the workshop series.

FIGURE 2 : HOW RETA TEACHERS CHARACTERIZE THEIR EXPERIENCE INTEGRATING TECHNOLOGY INTO THEIR TEACHING.



There were also statistically significant, though less dramatic, increases in teachers' own use of email, their use of the World Wide Web (WWW), their use of computers with their students (see Figure 3), and their use of a number of software applications and digital resources with their students, such as email, the Internet, desktop publishing packages, presentation and flowchart software and educational software.

FIGURE 3: HOW OFTEN RETA TEACHERS USE COMPUTERS WITH THEIR STUDENTS.



Collegial behavior

Along with providing participants with instruction in the use of technology to support their personal teaching goals, the RETA program also strongly encourages participants and instructors to take on technology leadership responsibilities in their schools and districts. In accordance with our findings from the past four years, RETA teachers report that their collegial behaviors changed over the course of the year. At the time of the final workshop, teachers report that they provide more hardware and software assistance to their peers and that they have increased their participation in discussions about curriculum design and technology issues with colleagues. What is particularly striking is the difference between the pre/post surveys in the percentage of teachers who report "never" having provided this kind of support to their peers (see Figures 4-7). Making the change from "never" engaging in these helping behaviors, especially when it relates to something that can be as intimidating as technology, to attempting these behaviors even a few times marks a major transition for teachers.

FIGURE 4: HOW OFTEN RETA TEACHERS HELP COLLEAGUES WITH HARDWARE PROBLEMS.

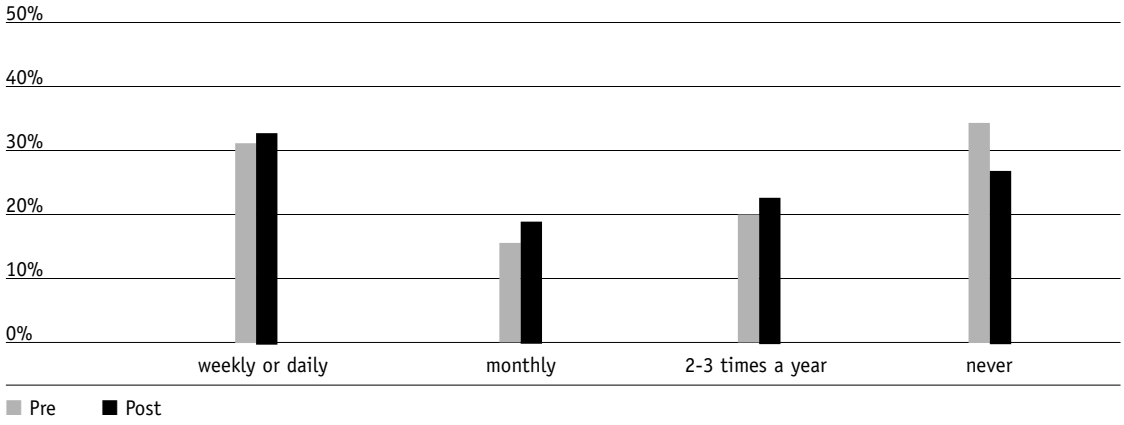


FIGURE 5: HOW OFTEN RETA TEACHERS HELP COLLEAGUES WITH SOFTWARE PROBLEMS.

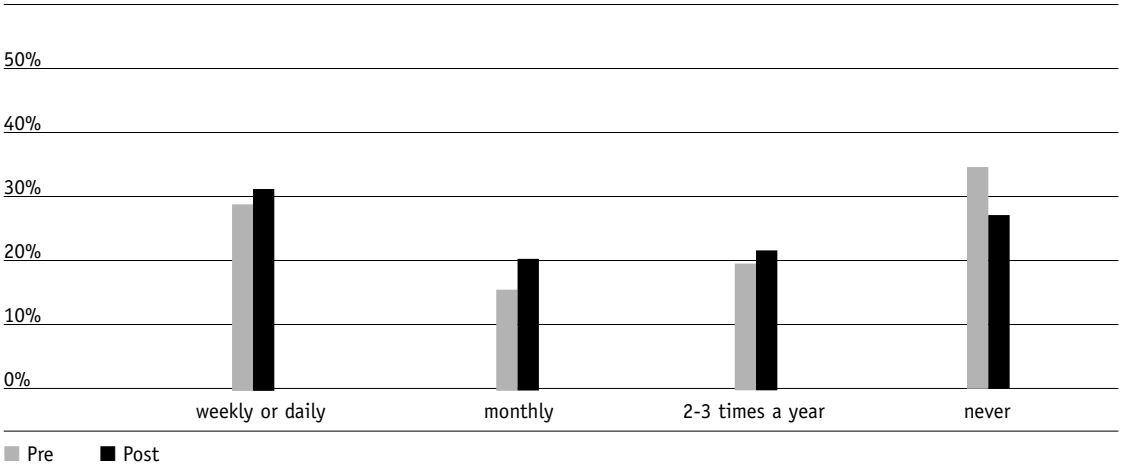


FIGURE 6: HOW OFTEN RETA TEACHERS HELP COLLEAGUES DESIGN CURRICULUM THAT USES COMPUTERS.

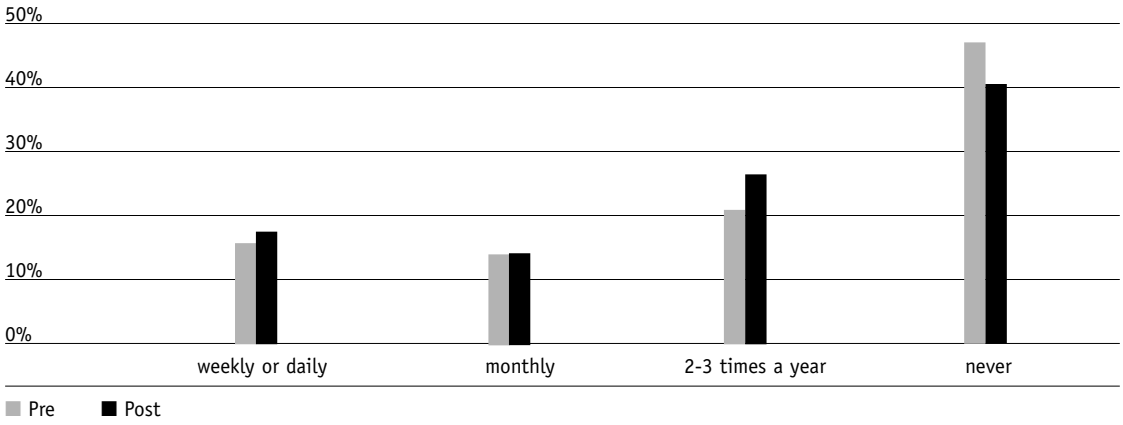
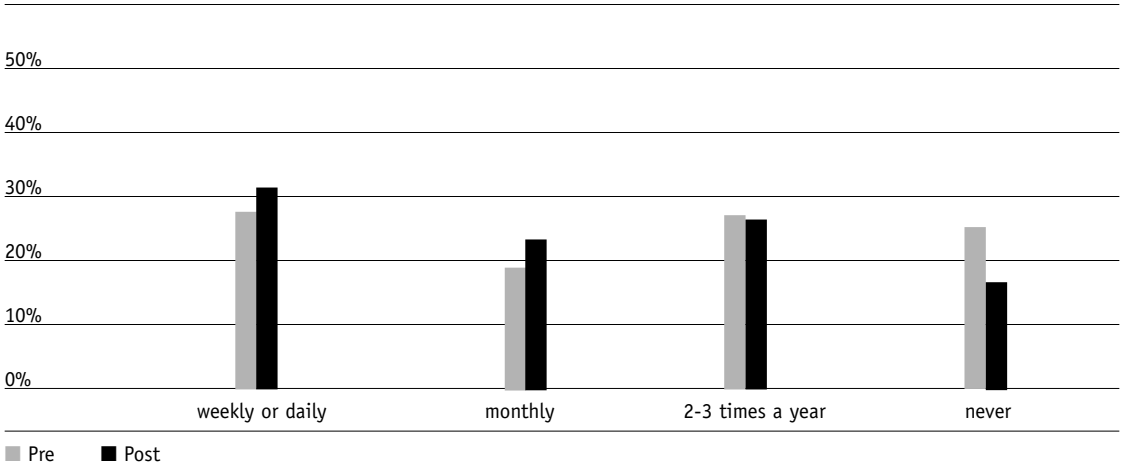


FIGURE 7: HOW OFTEN RETA TEACHERS DISCUSS TECHNOLOGY-RELATED ISSUES WITH COLLEAGUES.



Cross-tabulations

We analyzed our survey data using a number of independent variables, such as gender, ethnicity, and experience in RETA, in order to see if there were important differences that could be associated with these participant characteristics.

Gender

On the pre survey, men tended to rate themselves significantly higher than women in many categories, such as levels of use for email, and the WWW; helping behaviors such as assisting peers with hardware and software problems, discussing technology related issues with peers, and train-

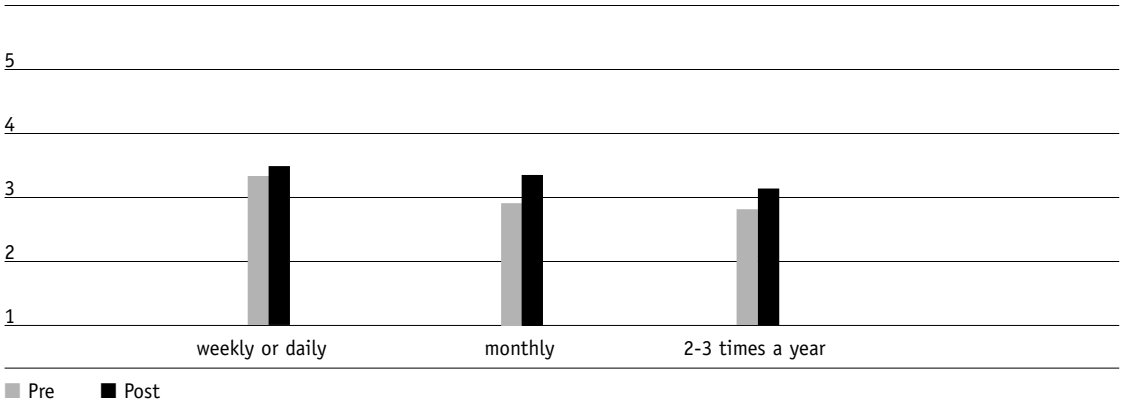
ing others in the use of technology; and attending and presenting at professional conferences. Although in many categories men remained higher than women in the post survey, the gains made by women were larger than those made by men. There were two categories, however, in which men gained more than women: use of the WWW and assisting peers in designing curriculum that uses computers. Males make up less than 10% (n=30) of the survey respondents, so results for the men are more susceptible to influence by a few high or low scores than the results for women, and may, therefore, skew the differences to some degree.

Ethnicity

We analyzed our survey findings to see if ethnicity[17] appeared to be a factor in the results. In most cases, we did not find significant differences due to ethnicity, but there were some questions for which ethnicity was a key factor. Overall, for example, all ethnicities had generally high rates of technology access. Hispanic respondents, however, reported lower rates of student access to computer labs (85%) than did Caucasian (96%) or Native American (95%) respondents. On questions about Internet access, Native American teachers tended to have lower rates of access to the Internet in their school computer labs (89% vs. 96% for Caucasians and 92% for Hispanics) but slightly higher rates of access to the Internet from their classroom computers (97% vs. 95% for both Caucasian and Hispanics). These findings are consistent with findings reported in this year's Technology Counts (2003) issue of Education Week[18], which reports that 1) the statewide average for Internet access among schools in New Mexico is 95%, with 96% of high-poverty and 96% high-minority schools having access and 2) the percent of schools with Internet access in one or more classrooms is 92%, with 90% in high-poverty schools and 88% in high-minority schools.

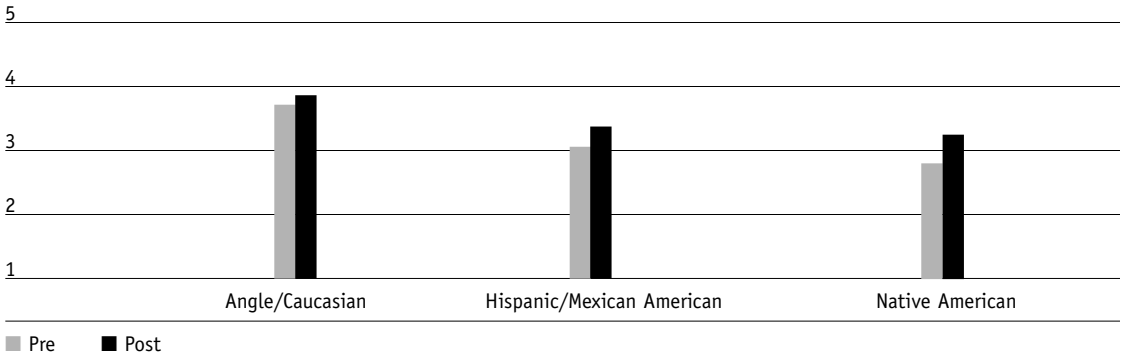
Ethnicity was related to some degree to participants' use of email and the WWW. Those who described themselves as Anglo/Caucasian used both of these significantly more often on both the pre and post surveys than those who described themselves as either Hispanic/Mexican-American or Native American, but these latter groups made larger gains over time than the former group (see Figs. 8 & 9).

FIGURE 8: FREQUENCY OF USING EMAIL, BY ETHNICITY (1=NEVER, 5=DAILY)



[17] Because there were so few Asian (n=1) and African American (n=2) respondents, we only analyzed the data by the ethnicity categories of Anglo/Caucasian (n=217) Hispanic (n=96) and Native American (n=39).
[18] Education Week, (May 8, 2003). Technology Counts 2003. vol. 22, no. 35. Education Week: Bethesda, MD.

FIGURE 9: FREQUENCY OF USING WWW, BY ETHNICITY (1=NEVER, 5=DAILY)



The other group of questions for which ethnicity seemed to be relevant were those that asked about assisting peers. In the pre survey, Caucasian respondents reported helping their peers more often in all categories (hardware problems, software problems, designing curriculum and discussing technology-related issues) than either Hispanics or Native Americans, but by the post survey, these differences were much less striking. Native American participants in particular made the most substantial gains in helping their peers between the pre/post surveys. (See Figs. 10-14. Note that in some cases, it is most helpful to look at the change from pre/post in the percentage of participants who report that they have "never" engaged in the specific helping behavior.)

FIGURE 10: PERCENTAGE OF RETA TEACHERS WHO HELP THEIR PEERS DAILY OR WEEKLY WITH HARDWARE PROBLEMS, BY ETHNICITY.

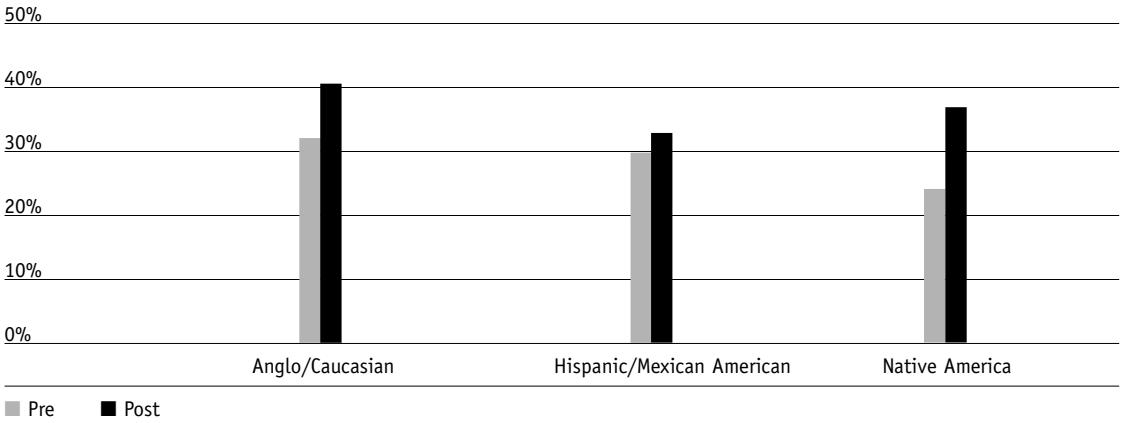


FIGURE 11: PERCENTAGE OF RETA TEACHERS WHO HELP THEIR PEERS DAILY OR WEEKLY WITH SOFTWARE PROBLEMS, BY ETHNICITY.

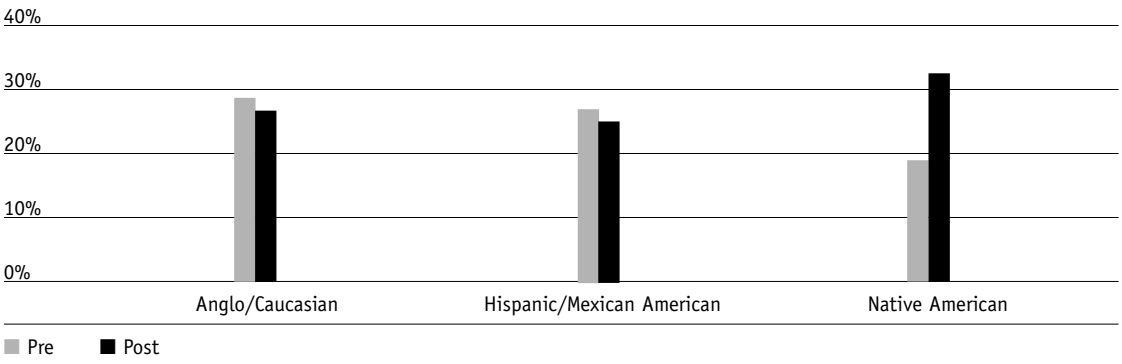


FIGURE 12: PERCENTAGE OF RETA TEACHERS WHO NEVER HELP THEIR PEERS WITH SOFTWARE PROBLEMS, BY ETHNICITY.

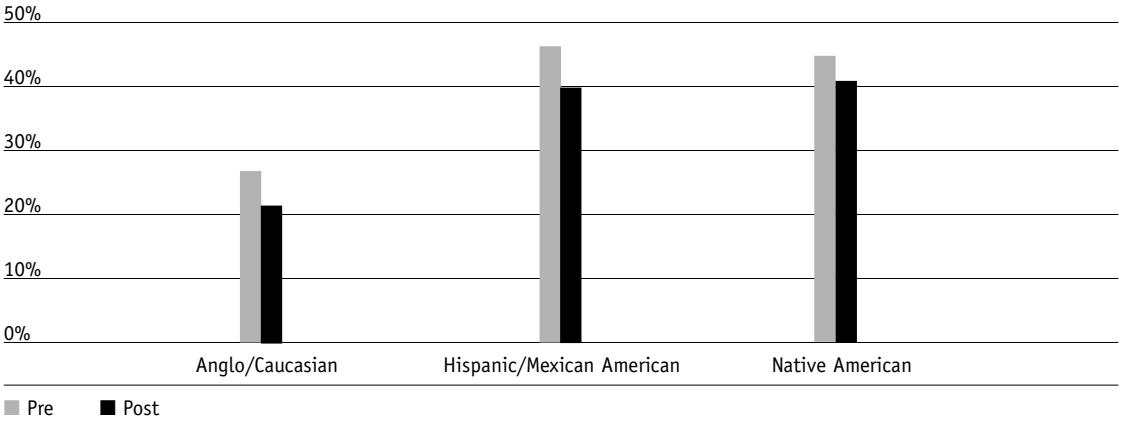


FIGURE 13 : PERCENTAGE OF RETA TEACHERS WHO NEVER HELP THEIR PEERS WITH DESIGNING CURRICULUM THAT USES COMPUTERS, BY ETHNICITY

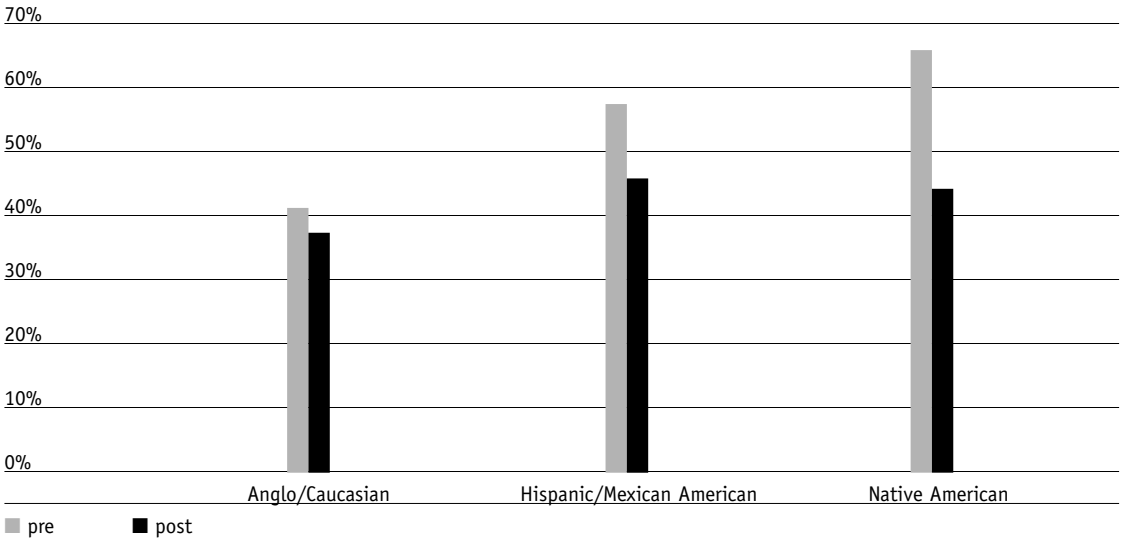
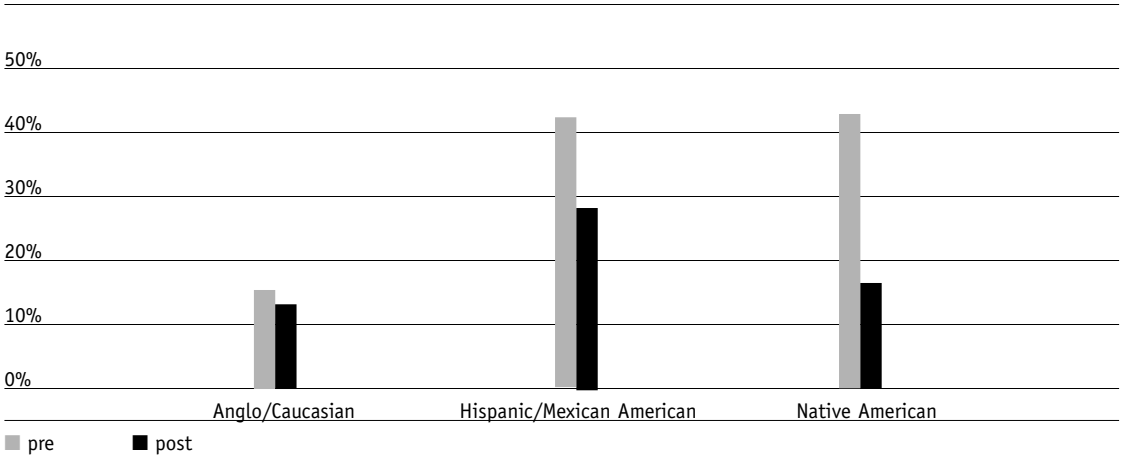


FIGURE 14 : PERCENTAGE OF RETA TEACHERS WHO NEVER HELP THEIR PEERS WITH DISCUSSING ISSUES RELATED TO TECHNOLOGY, BY ETHNICITY



RETA Experience

By far, the respondent characteristic that was associated with the most substantial differences in the survey findings was the respondent's previous experience in the RETA program. The data reveal different kinds of changes taking place in those teachers who had participated in the program before and those who had not. For example, on certain questions, such as questions about use of email and the World Wide Web, experienced RETA teachers started at a higher level than new participants, but the new participants made greater gains in these areas (see Figure 15). However, experience in RETA was associated with higher overall rates and some higher gains over time on questions that relate to teachers' interactions with their colleagues and their professional activities. Experienced participants were more likely than new participants to assist their peers with hardware and software problems, with designing curriculum that uses computers and with discussing computer-related issues with their peers, and gained more over time than new participants in assisting with software problems and with designing computer curriculum (see Figure 16). Teachers who had participated in RETA before the 2002-03 school year were also more likely to respond positively on questions asking them if they attended professional conferences, if they presented at conferences, if their presentations were technology-related and if they helped their schools apply for funding (see Figure 17).

FIGURE 15 : CHANGE IN USE OF EMAIL AND THE WWW, BY NEW VS. REPEAT RETA PARTICIPANTS.

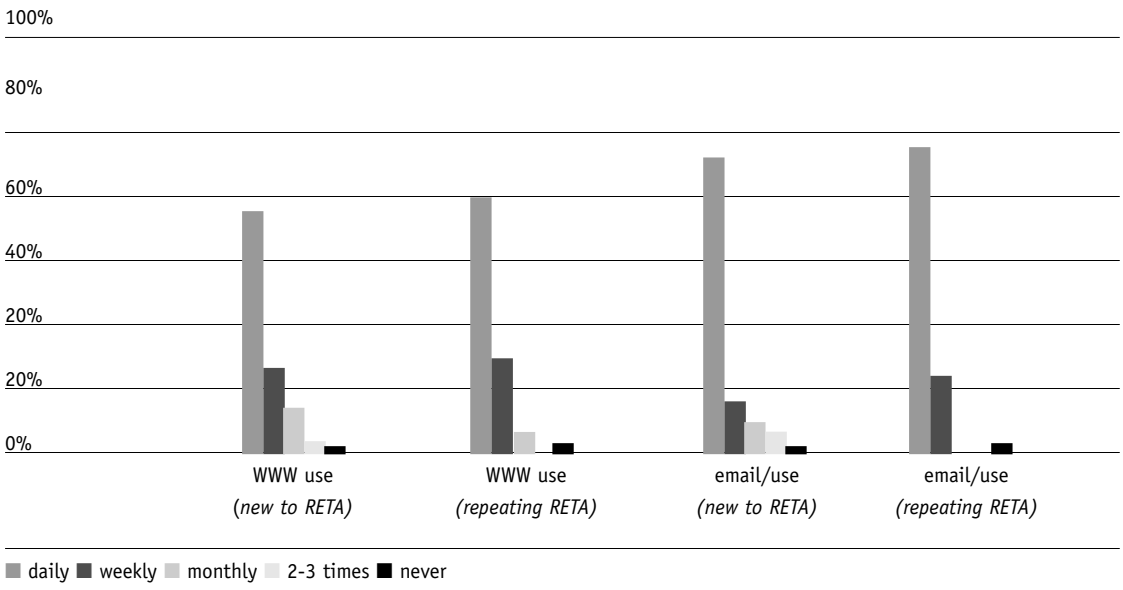


FIGURE 16: CHANGE IN MEAN SCORE FORM PRE TO POST SURVEY IN HELPING BEHAVIORS, BY RETA EXPERIENCE. (0= NEVER, 1=2-3 TIMES PER YEAR, 2= MONTHLY, 3=WEEKLY, 4=DAILY)

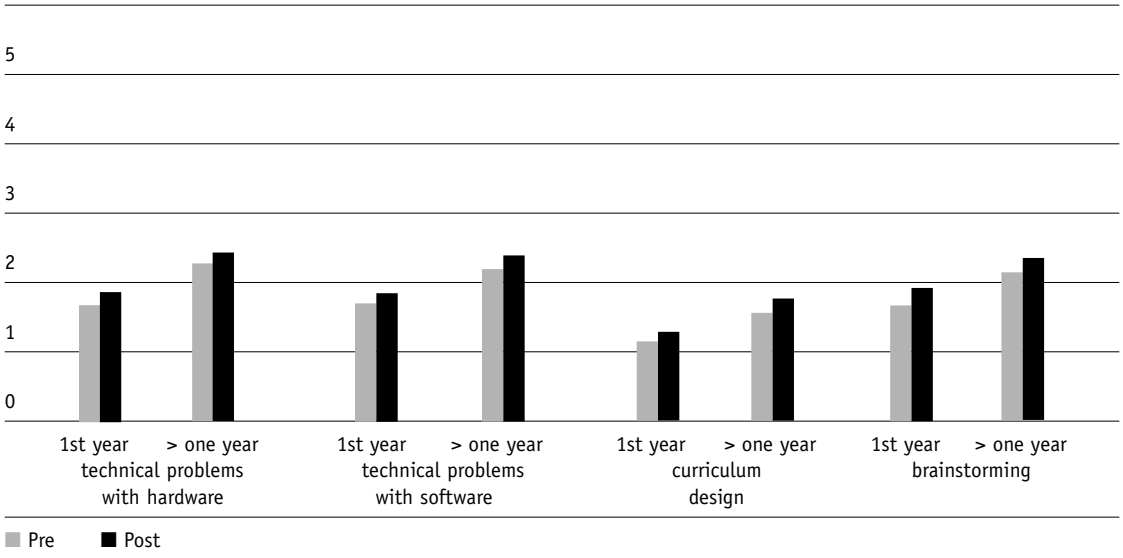
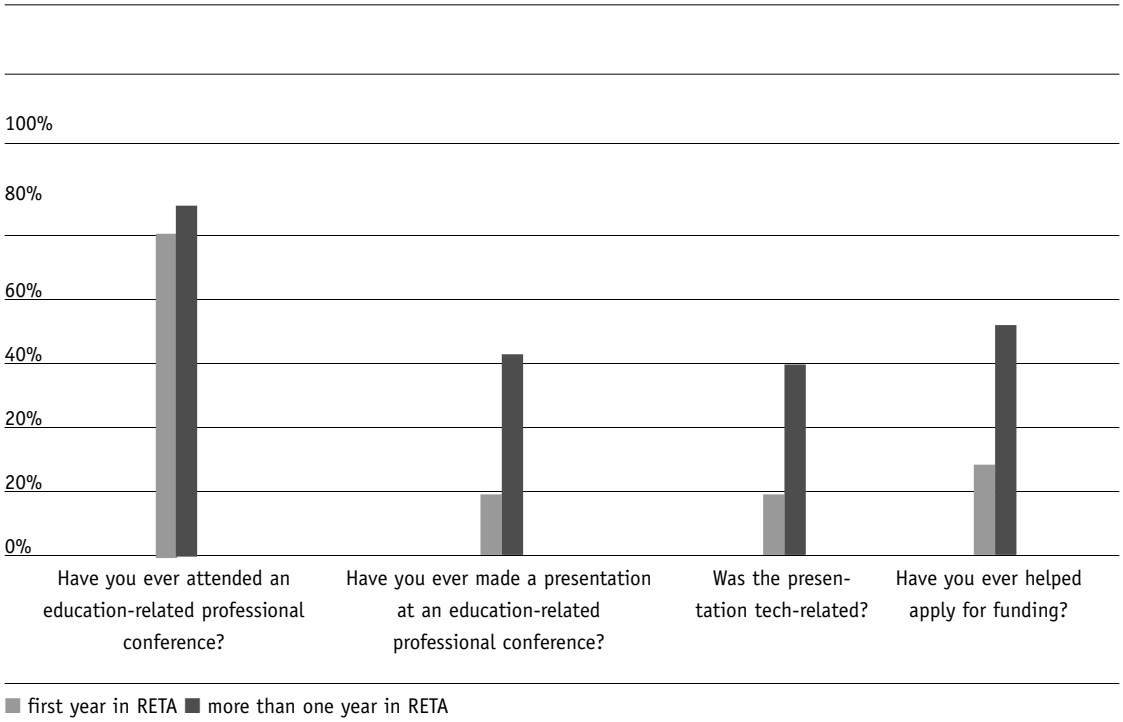


FIGURE 17 : RATES OF ENGAGING IN VARIOUS PROFESSIONAL PRACTICES, BY RETA EXPERIENCE.



These findings are important because they illustrate the way in which the program fosters the growth of its participants. A key component of the RETA model is that teachers are not only able to but are encouraged to take part in the training more than once. Because the program is not static, but can be tailored each year to fit the needs of the participants, and because the participants can receive university credit each time they take part in the program (up to three years), there are incentives for teachers to maintain their relationship with the program. These findings indicate that, over time, the program influences participants in different ways. In the first year of training, teachers increase their use of technology and gain more confidence in their technology skills. In successive years of the program, participants begin to take on more leadership responsibilities in their schools. This process of transformation has been corroborated over the years through our observations of RETA participants and our interviews with participants, instructors and technology leaders, who have described the changes they have seen in either themselves or in teachers they know who have been involved in the program (see Year 1-4 RETA Evaluation reports).

The RETA staff pride themselves on fact that the program has not just provided technology workshops to teachers over the past 8 years, but has built a community of professionals who are both skilled technology users and engaged educators who can use their knowledge and skills to help not only their students but also their colleagues, schools and districts.

RETA over Five Years

Throughout the five years of RETA, we have consistently found that teachers participating in the program have made changes in a range of areas related to the use of technology and their collegial behaviors. Even as technology use has become more prevalent among the general population, we can see that participation in RETA tends to take participants to an even higher level of usage. The graphs below (Figs. 18 & 19) show that, in each successive year, participants come to the workshops with higher and higher rates of using, for example, email and the WWW, but report in their post surveys that they are using these technologies more often than they had previously.

FIGURE 18. WWW USE BY RETA TEACHERS THROUGHOUT THE YEARS.

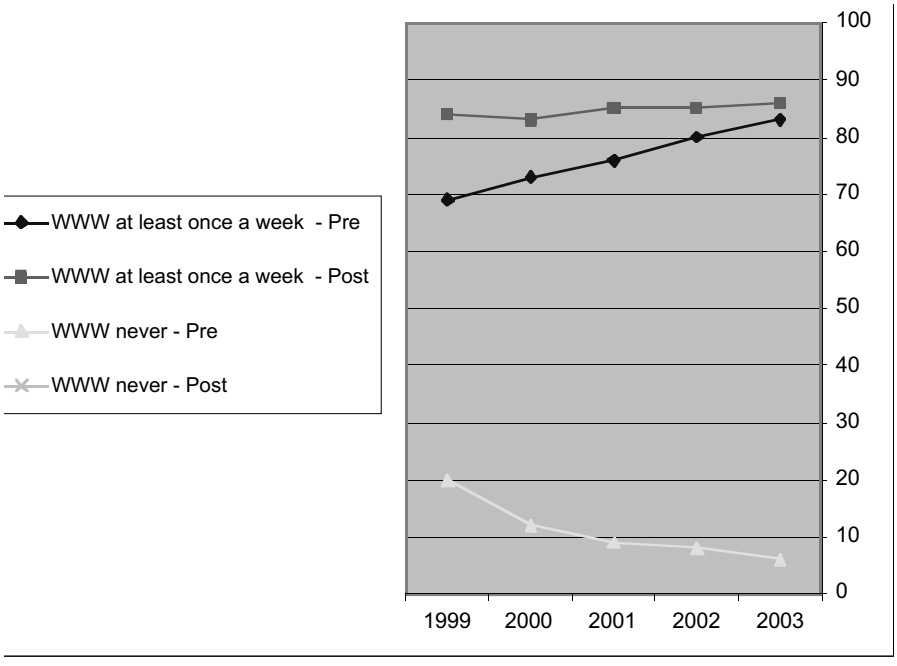
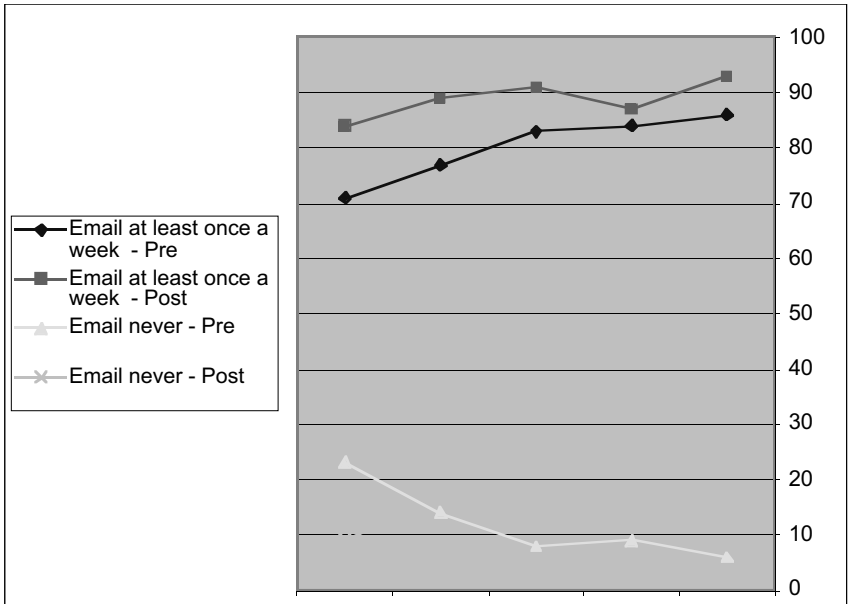


FIGURE 19. EMAIL USE BY RETA TEACHERS THROUGHOUT THE YEARS.



More important than their personal use of various kinds of software, participants over the years have reported increased use of computers with their students (see Fig. 20). They have also increased their use of various kinds of software with their students, such as the WWW (see Figure 21). These experiences have helped RETA participants over the years gain confidence in their technical skills. Over the past two years of the program, we have asked survey respondents to rate their experience integrating technology into their teaching. Each year, participants rate their experience integrating technology significantly higher by the end of the workshop series (see Figure 22).

FIGURE 20 : CHANGE IN PERCENTAGE OF RETA TEACHERS' WHO USE COMPUTERS DAILY WITH THEIR STUDENTS.

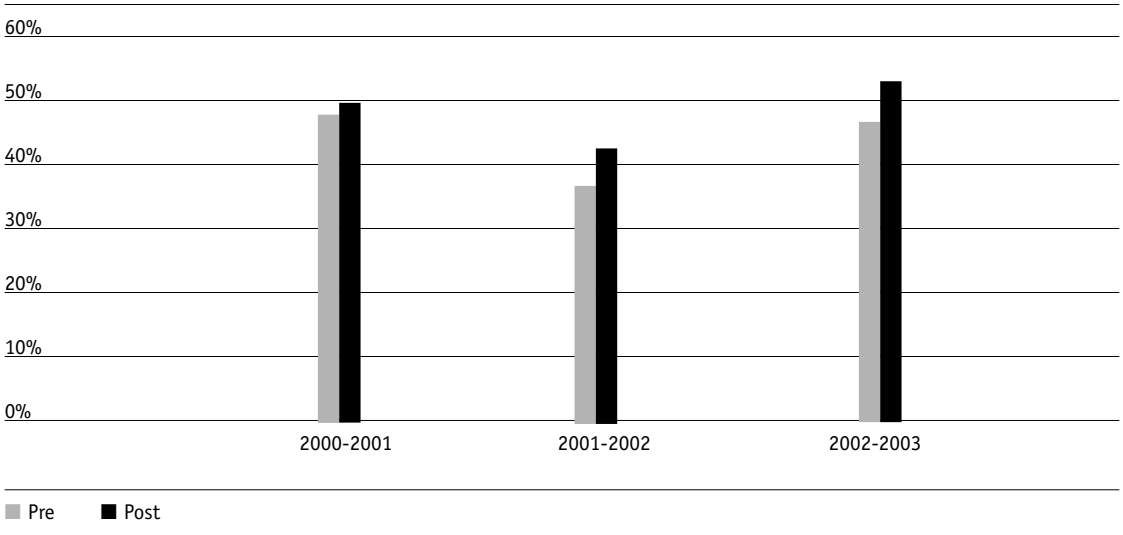


FIGURE 21: RETA TEACHERS' USE OF WWW STUDENTS: PERCENT WHO USE AT LEAST DAILY.

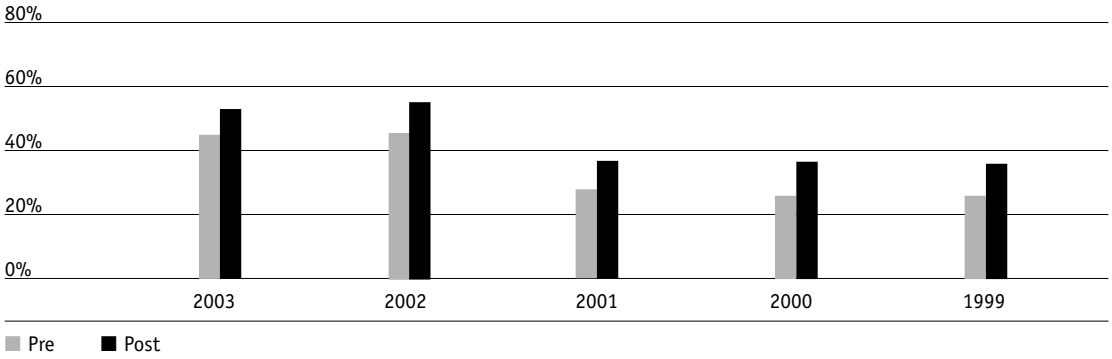
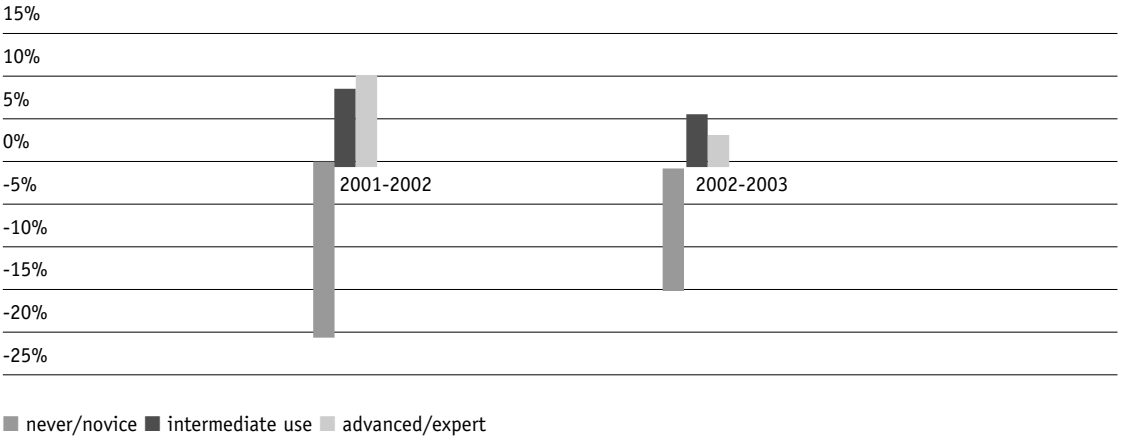


FIGURE 22 : PERCENTAGE DIFFERENCE FROM PRE TO POST IN RETA TEACHERS' RATINGS OF THEIR EXPERIENCE INTEGRATING TECHNOLOGY OVER TWO YEARS.



[RETA] is a human support system that says if you need help I can help you, and you can move them from "I can't " to "Let me help you." Former RETA participant, current RETA instructor.

Participants over the years also consistently indicate that they have increased the rates at which they assist their peers with technology-related problems and practices. Every year of the program, participants made gains in assisting their colleagues with hardware and software problems, designing curriculum that uses computers, and in discussing issues related to technology (see Figs. 23-30). As with the 2002-03 data, it is particularly interesting to see the change each year in the percentage of participants who report "never" engaging in these practices.

FIGURE 23: PERCENTAGE OF RETA PARTICIPANTS WHO ASSIST PEERS WITH HARDWARE PROBLEMS AT LEAST ONCE A WEEK, OVER FIVE YEARS.

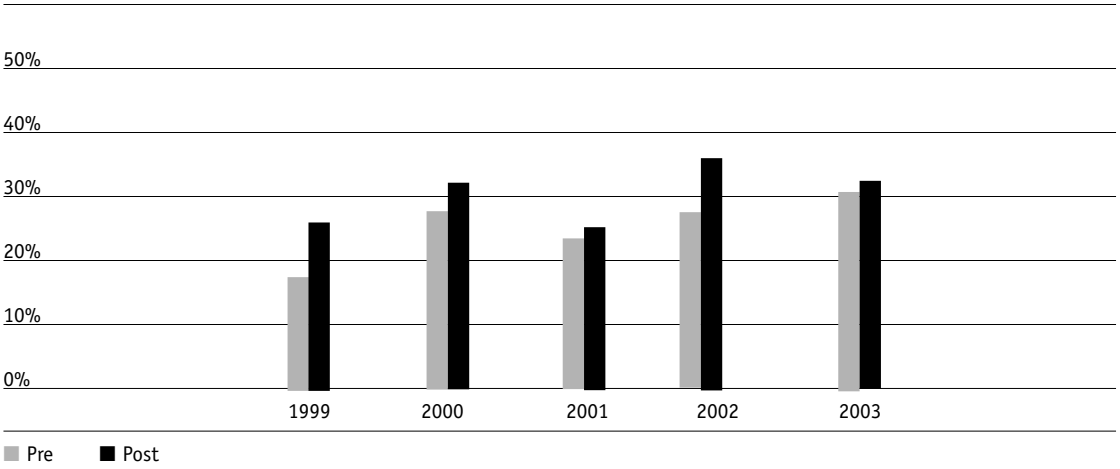


FIGURE 24: PERCENTAGE OF RETA PARTICIPANTS WHO ASSIST PEERS WITH SOFTWARE PROBLEMS AT LEAST ONCE A WEEK, OVER FIVE YEARS.

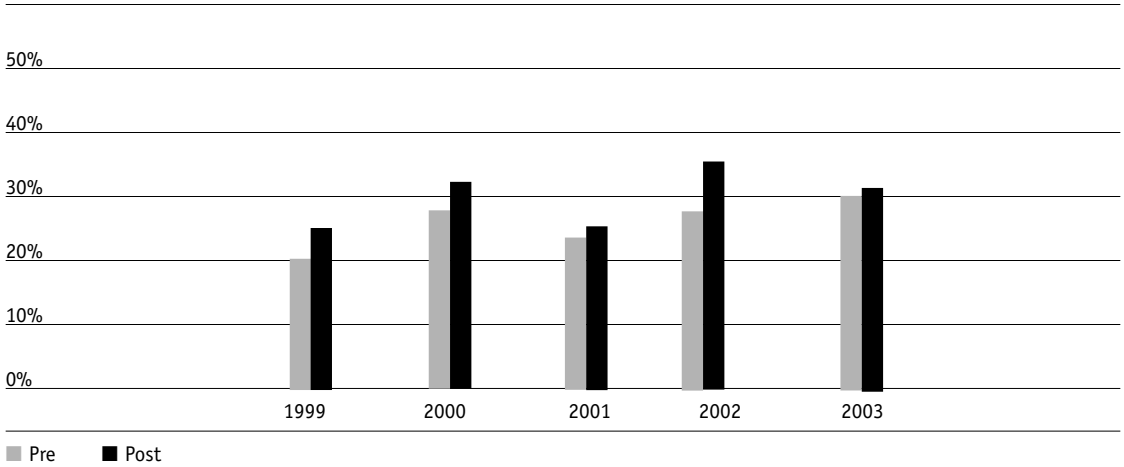


FIGURE 25: PERCENTAGE OF RETA PARTICIPANTS WHO HELP PEERS DESIGN CURRICULUM THAT USES COMPUTERS AT LEAST ONCE A WEEK, OVER FIVE YEARS.

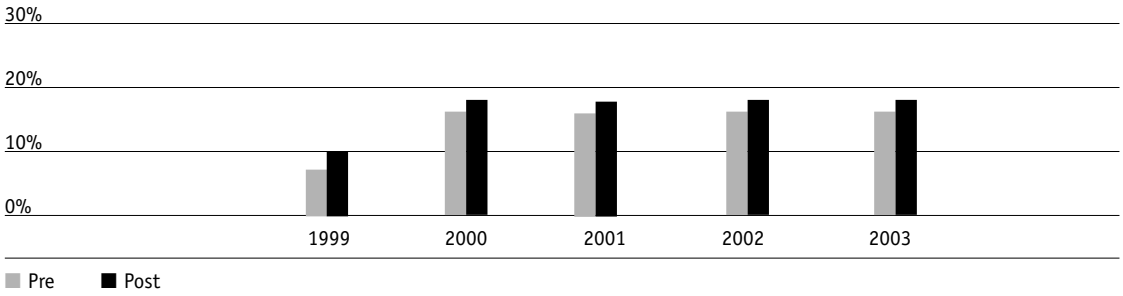


FIGURE 26: PERCENTAGE OF RETA PARTICIPANTS WHO DISCUSS TECHNOLOGY-RELATED ISSUES WITH PEERS AT LEAST ONCE A WEEK.

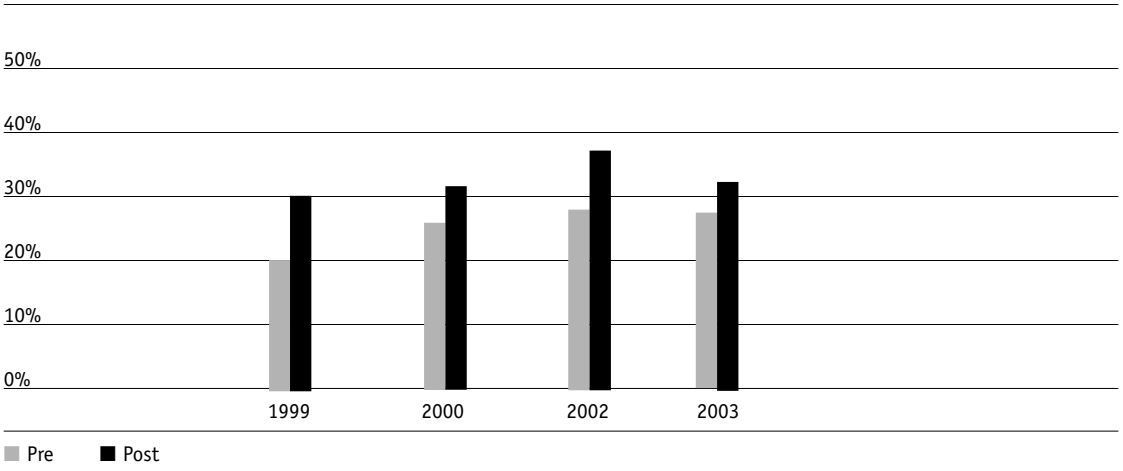


FIGURE 27: PERCENTAGE OF RESPONDENTS WHO NEVER HELP WITH HARDWARE PROBLEMS.

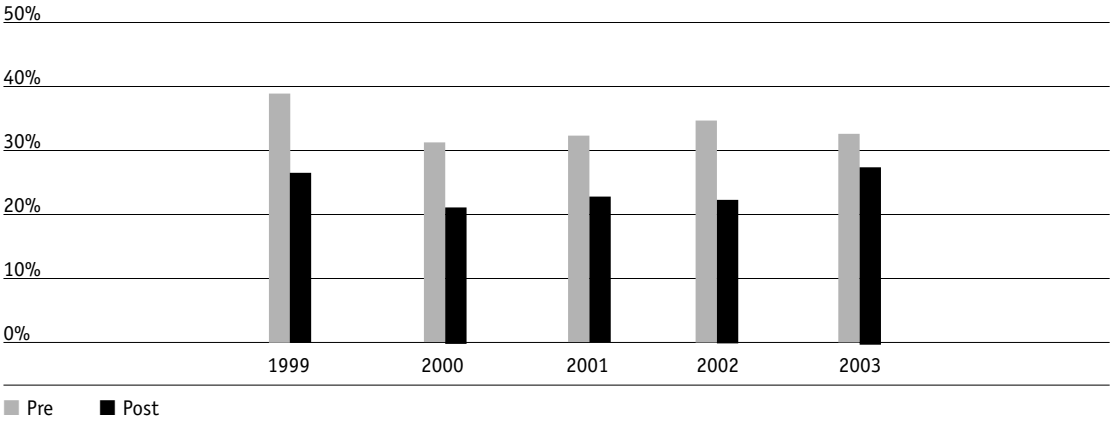


FIGURE 28: PERCENT OF RESPONDENTS WHO NEVER HELP WITH SOFTWARE PROBLEMS.

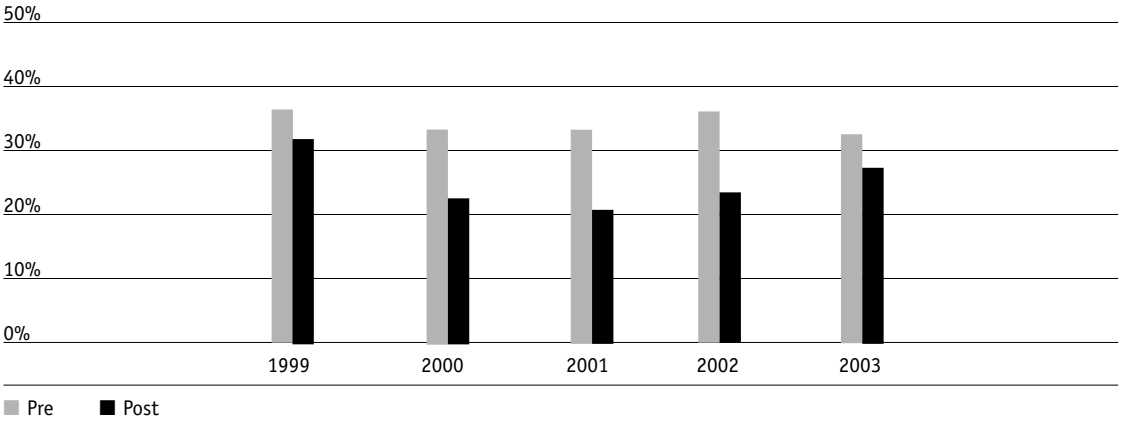


FIGURE 29: PERCENT OF RESPONDENTS WHO NEVER HELP WITH DESIGNING CURRICULUM USING COMPUTERS.

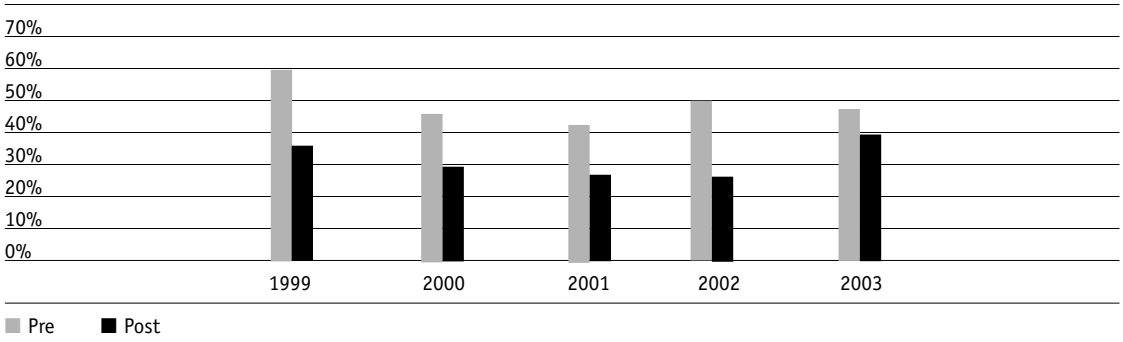
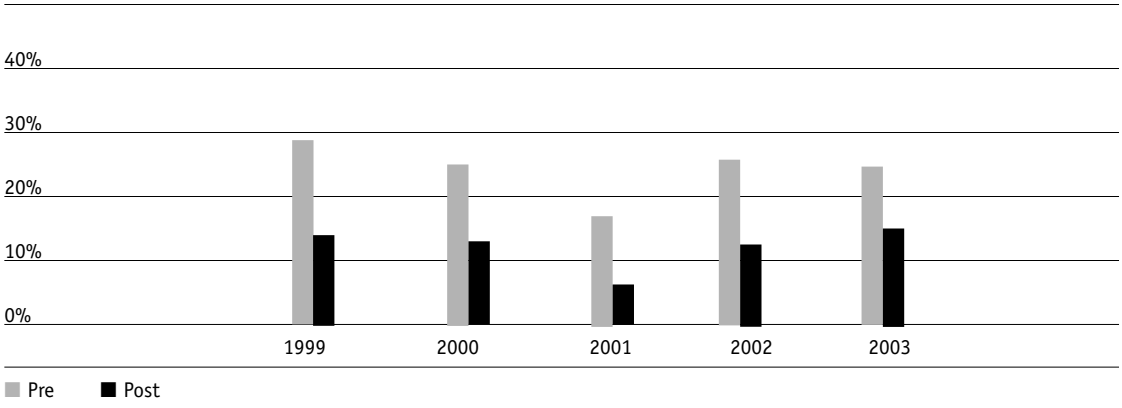


FIGURE 30: PERCENT OF RESPONDENTS WHO NEVER BRAINSTORM ISSUES RELATED TO COMPUTERS.



Looked at in conjunction with our other findings over the years from our interviews and observations, these results show that the RETA program has had a consistent impact on the professional lives of its participants.

Structured Observations

As we did in the previous year, this year we again conducted structured observations in the classrooms of RETA participants. With the help of three graduate students from New Mexico State University, who conducted observations in schools in the southern part of the state, we visited a total of 17 teachers. The observations were conducted two times in the year, once after the participants had completed their first workshop and once when they had completed their final workshop. One participant who was observed at the beginning of the year dropped out of the RETA

program, so the data discussed in this section represent observations of 16 RETA participants.

The teachers who participated in the observations work in schools that are geographically dispersed across the north, center and south of the state. Some schools are in urban environments, some are in rural environments and some are in larger towns. One school we visited is on a Native American pueblo. Teachers in this study teach at the high school, middle school and elementary school level. The students served by the schools in our study were from diverse backgrounds. Most of the schools we visited had large populations of Hispanic students, one served exclusively Native American students and the others had a mixture of White, Hispanic and Native American students.

In order to conduct our observations, we used an instrument that we developed in the previous year, which was based on the Apple Classroom of Tomorrow observation protocol and the Milken Professional Competency Continuum (see list of instruments). The protocol requires the observer to note down at five minute intervals various aspects of classroom activity, such as how the lesson taking place is structured, what kinds of technologies and applications are being used, what the student and teacher roles are, who is using the technology and how the technology is being used. For each category there is a list of possible responses with a corresponding numerical code that the observer fills in at each five minute interval. These categories and the items within the categories correspond to questions on the pre/post survey, which ask respondents to provide details about a lesson they conduct that involves technology. Before conducting the formal observations, we piloted the instrument with the NMSU graduate students who conducted some of the observations. We all observed a class together, filled in the observation instrument and later discussed why we coded certain activities the way we did. If there were discrepancies in our coding, we defined the codes more clearly in order to resolve those discrepancies.

Similar to our observations from last year, we found some substantial changes in the ways in which teachers used technology from the first observation to the last observation. After participating in RETA, teachers were more likely to structure their lessons around labs and activities rather than lectures, desk work, teacher question and answer sessions and computer skill work, and this year, we observed a striking change by the end of the year in the number of teachers who had their students use technology to present their own work. Figure 31 shows the change from the first visit to the last visit in how teachers structured their class lessons, and Figure 32 shows the change in how technology was used in the classroom during our observations. (The item “Free-choice option” indicates when teachers allow students to use a computer game or application when they have completed the work assigned for the period.)

FIGURE 31 : HOW RETA TEACHERS STRUCTURED THE CLASS LESSON

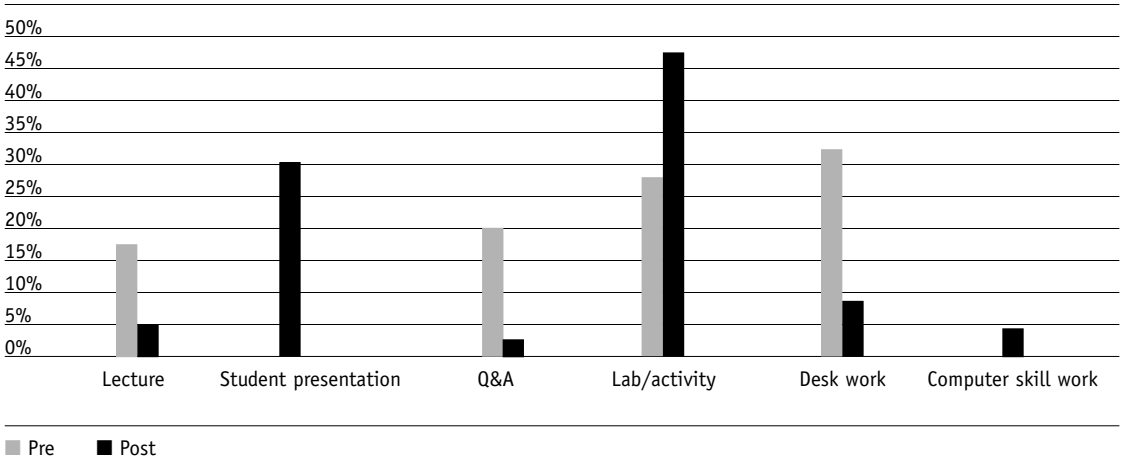
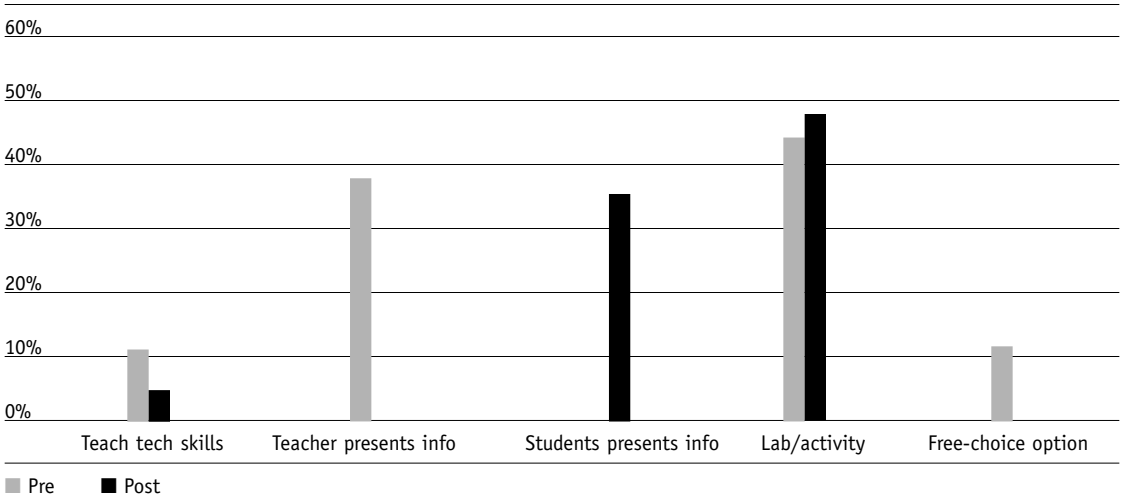


FIGURE 32 : HOW TECHNOLOGY WAS USED IN CLASSROOMS



In addition to changes in the way class activities and lessons were structured and the way in which teachers chose to have their students use technology, the roles that teachers and students took in the classroom also changed over the course of the year. In our first observation, teachers were more likely to assume the role of leader in the classroom than they were by the end of the year. By our second observation, teachers were more likely to act as facilitators of activities that students were engaging in or to be observers while the students presented their own work to the classroom (see Figure 33). The students' roles changed over time as well. In our first observation, they were more likely to be sitting at their desks responding to questions posed by the teacher; by the end of the year, they were more likely to be engaged in group work. There was also a small

increase in the amount of independent work students were engaged in (see Figure 34). By our second observation, teachers were more likely to have students using technology rather than using technology themselves to present information, and they tended to involve more students in the use of technology than they had previously (see Figure 35).

FIGURE 33 : TEACHER ROLE IN CLASSROOM

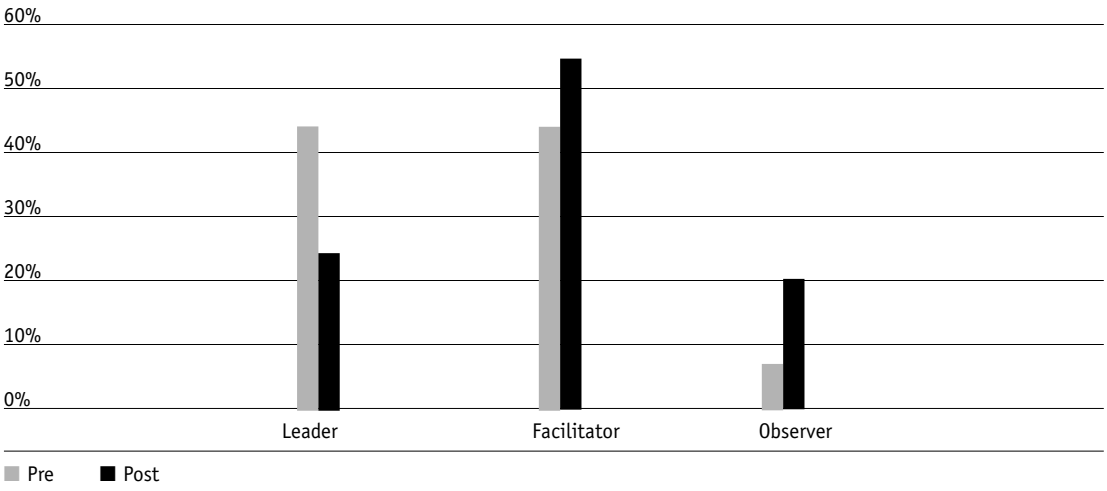


FIGURE 34 : STUDENT ROLE IN THE CLASSROOM

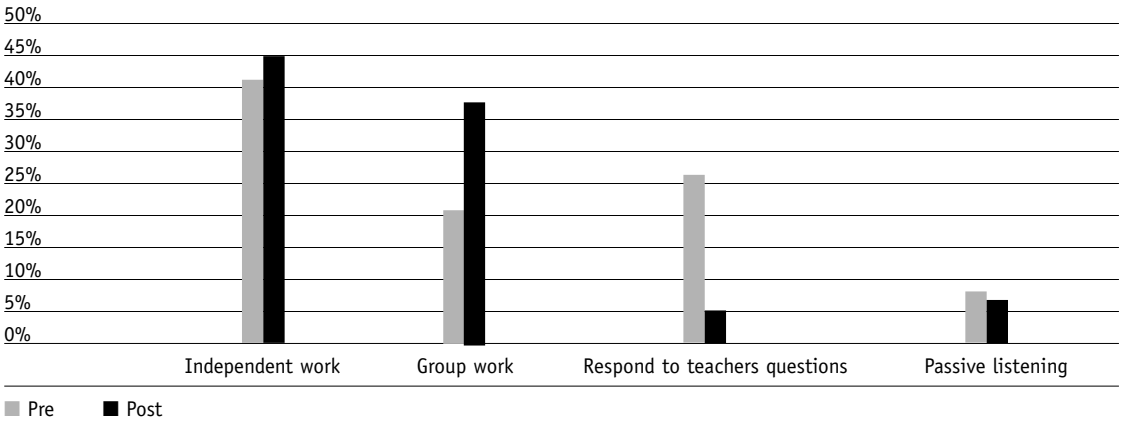
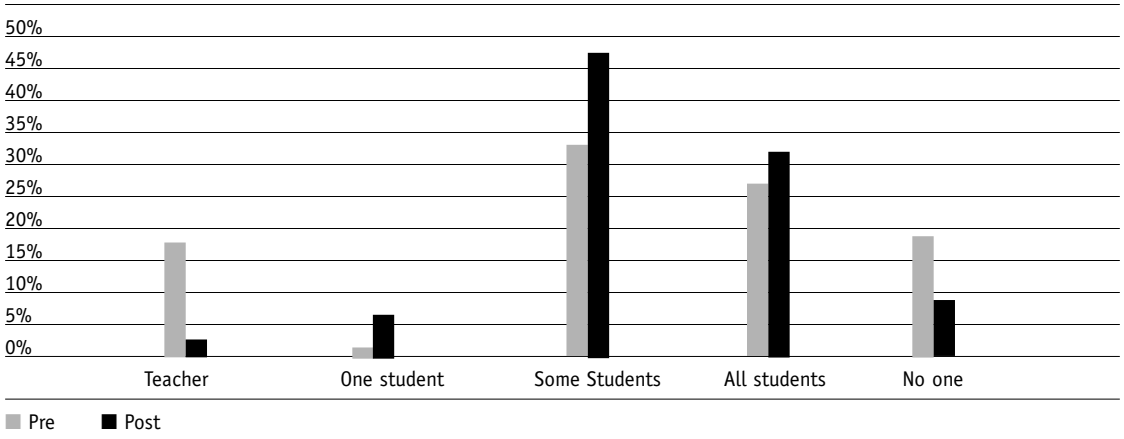


FIGURE 35 : WHO IS USING TECHNOLOGY IN THE CLASSROOM



The RETA workshops are designed not simply to help teachers develop technical skills, but also to help teachers understand how they can use technology in their classrooms to create engaging lessons in which students play an active role in their learning. This is why we chose to look at the ways in which technology was being used in the classroom and how the classroom dynamics were structured rather than simply looking at whether teachers were using more technology after participating in the program. These observational data suggest that RETA teachers do change their classroom practice, at least regarding their use of technology, after participating in RETA. The RETA workshops provide teachers with concrete examples of technology-enhanced activities they can do with their students, and the program provides participants with software they can take back to their schools and use in their classrooms and computer labs. In addition, RETA instructors are trained to model constructivist teaching practices in their own instruction, enabling teachers, often working in small groups, to learn technical skills in the context of a project or activity. For the past two years, our structured observations have provided evidence that RETA participants come away from the training better prepared to integrate technology into meaningful and engaging activities for their students.

Teacher retention

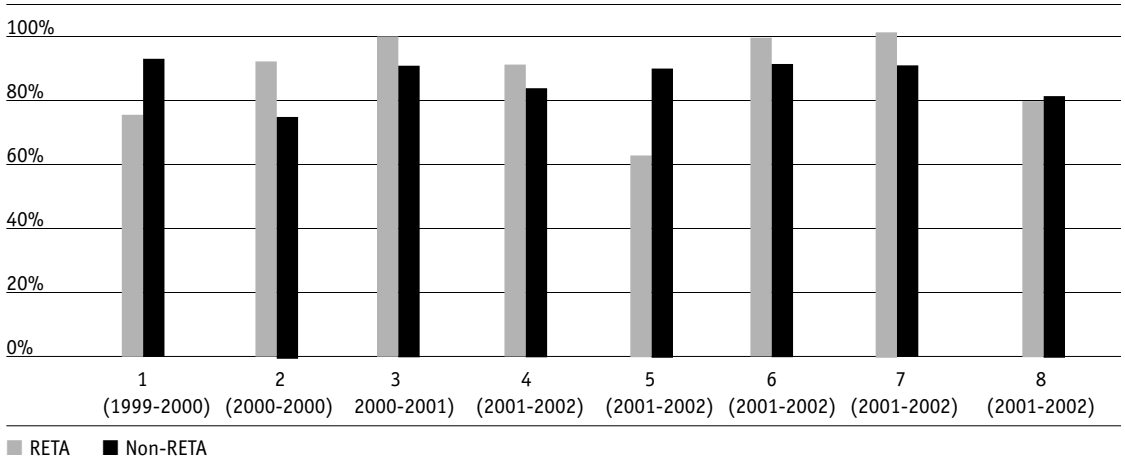
Interviews we have conducted over the years with technology leaders, policy makers, participants and instructors provided us with qualitative evidence that participation in RETA helps to instill in teachers a renewed interest and commitment to the teaching profession. A number of our interviewees suggested that there may be a relationship between participation in the RETA training and teacher retention rates. Therefore, as a part of our final five year analysis, we looked more quantitatively and systematically into teacher retention rates in various New Mexico schools and districts. We requested data from the NM SDE on teacher retention from a random selection of New Mexico school districts. We then created two categories of teachers—those who had gone through the RETA training and those who had not—by matching the names and schools of RETA partici-

pants with the names and schools sent to us by the NM SDE. Next, we compared retention rates of the RETA vs. non-RETA teachers.

Out of a list of 90 schools in 12 randomly selected school districts, we were able to identify five schools that had a high enough concentration of RETA teachers to make meaningful comparisons with the rest of the teaching population in those schools. Altogether, our comparison of teacher retention rates was comprised of 8 datasets taken from the five schools: five for 2001-2002, two for 2000-2001, and one for 1999-2000 (see Figure 36). In five out of the eight datasets, RETA teachers had a higher rate of retention than non-RETA teachers. In one of the 8 datasets, the rate was equal for RETA and non-RETA teachers. In only two of eight datasets did we see higher retention rates among non-RETA teachers. In three out of the five instances of higher retention rates among RETA teachers, the rate for RETA teachers was 100%. This rate was not present among non-RETA teachers anywhere.

It is important to keep in mind, however, that the average number of RETA teachers in each analysis was 10, while the average number of non-RETA teachers was 73. Therefore, one should exercise caution when interpreting these findings or inferring from them.

FIGURE 36: RETENTION RATES OVER THREE YEARS IN DIFFERENT SCHOOLS FOR RETA VS. NON-RETA TEACHERS. RETENTION RATES IN 8 SITES.



Student achievement

In our year five evaluation, we attempted to analyze the impact of the RETA program on student achievement. We requested from the NM SDE student achievement data from all of the school districts in the state over the past three years, which we received. However, because we were never able to get student achievement data at the classroom level, rather than the school level, we were not able to make comparisons between the students of RETA teachers and the students of non-RETA teachers. It did not make sense to compare schools with other schools, since there were few

schools in which enough teachers had been trained in RETA to assume that the entire school would be impacted by the program. In addition, when there is no way to control the school environment, it is difficult to make comparisons between two different schools because there may be many factors that could affect student achievement other than some teachers' participation in a voluntary professional development program. Also, our attempt to make cross year comparisons was frustrated by the fact that in a number of years during which the RETA program took place, the state of New Mexico changed the manner in which it evaluated and rated schools. Therefore, the ratings from one year could not be compared to the ratings from previous years, since the standards and criteria had changed. Finally, because RETA participants teach a wide array of subjects and grade levels, it was impossible to identify any one specific subject or grade-level test that would measure whether or not students perform better because their teachers took part in RETA. For all of these reasons, we were unable to conduct an analysis that would assess the impact of the RETA program on students' performance on standardized measures of student achievement.

SUSTAINABILITY

Regional Resource Centers

One of the essential elements of the RETA program over the past five years has been the establishment and support of Regional Resource Centers (RRCs) in six different institutions of higher education across the state of New Mexico. The RETA RRCs have provided technology professional development and services to educators in 65 school districts in the past year. During the 2002–03 school year, these RRCs offered a total of 263 workshops to inservice and preservice teachers, administrators, educational support staff, and higher education faculty members. In total, 1,920 people attended workshops provided by the RETA RRC's over the 2002-03 year.

Once the TICG funding ends, the RRC landscape will be transformed to some degree. Certain RRCs will no longer exist. The RRCs at Eastern New Mexico State University and New Mexico Highlands University will close. However, RETA and the RRCs worked together this past spring to submit proposals to the New Mexico State Department of Education's new Enhancing Education through Technology (E2T2) program. Of the four proposals that were accepted by the NM SDE, two of them were submitted by RETA RRCs and one includes RETA as a partner organization. RETA is currently involved in three of the four E2T2 programs funded. One of these proposals is for the Technology for Improved Achievement (TIA) RETA program. This new program partners RETA RRCs with school districts: the New Mexico State University RRC with Truth or Consequences School District, Western New Mexico State University RRC with Cobre School District, Santa Fe Community College RRC with Bernalillo School District and Northern New Mexico Community College RRC with Pojoaque Valley School District. The RRCs provide these school districts with the traditional six RETA workshops, and also10 Lesson Study[20] sessions for teachers to participate in. The second proposal funded by Enhancing Education Through Technology is for a program that brings together a consortium of five public school districts, one Pueblo school and one private school in the Northern part of the state and the Northern New Mexico Community College RRC. The RRC plans to provide these partner schools with Palm Pilot training and other kinds of technology professional development, to establish distance education studios for these schools to use, and to provide other services and resources once these schools and districts have determined their needs. These two programs will each receive $140,000 in funding for the 2003-04 school year.

Following are summaries of the kinds of services the individual Regional Resource Centers have provided and activities the RRCs have engaged in over the 2002-03 academic year.

[20] Lesson Study is a professional development technique in which teaching professionals review a lesson with each other and discuss in depth strategies for effective pedagogy.

New Mexico State University RRC

OVERVIEW	2002 - 2003
Total Number RRC Workshops	33
No. Primary Participants 452 K-12 Students	265 Educators
Est. Secondary Impact	1,500
No. RRC-based sessions	9
No. District-based sessions	24
No. NM Districts Served	11
No. Partnerships	3
No. Conference Presentations	11
Other	

PARTICIPANT CATEGORIES	2002-2003
Inservice teachers	215
Educational Assistants	0
Secretaries	0
Administrators	20
Preservice teachers	45
College Faculty	20
Parents	0
Students	452

PARTICIPANTS' GRADE LEVELS	
Pre-Kindergarten	0
Kindergarten	134
Primary	75
Secondary	288
Special Education	45
Ungraded	20
Grades Unknown	36
Total	598

WORKSHOP TOPICS	2002 - 2003
Planning Into Practice (SEDL)	1 session
Enhancing Education Through Technology and Technology Planning (NMSDE)	1 session
No Child Left Behind Tech Assistance Session (NMSDE)	1 session
MarcoPolo Internet Content for the Classroom and Science Web Resources	2 sessions
Palms in the Classroom	1 session
Palm Awareness	3 sessions
Technology Standards for School Administrators	4 sessions
RETA Online Resources	2 sessions
Palm Basics	2 sessions
More Palm Pilots	1 session
Palm III	1 session
Palm Classroom Integration	1 session
Palm Online	1 session
Adobe Acrobat I	1 session
Adobe Acrobat II	1 session
School Improvement Resources	1 session
Basics of Technology Peripherals	1 session
PowerPoint	1 session
Inspiration 1 session Excel	1 session
QiMacros	1 session
School Web Sites	1 session
Web Surveying	1 session
Desktop Publishing	1 session
Web Page Development	1 session

DISTRICTS SERVED	2002 - 2003	PARTNERSHIP	NO.YEARS
Las Cruces Public Schools	18 sessions	Yes	1
Truth or Consequences	1 session and Grant partnership	Yes	1
Moriarty	6 sessions	Yes	3
Los Lunas	6 sessions	No	1
Lordsburg	1	No	
Tularosa	1	No	
Capitan	1	No	
Alamogordo	2	No	
Estancia	1	No	
Deming	1	No	
Gadsden	1	No	
Los Alamos National Laboratory	software	Yes	3

CONFERENCE PRESENTATIONS DISSEMINATION ACTIVITIES	TOPICS	DATES	NO. ATTEND
ISTE Minority Leadership Symposium	RETA Web-based Curriculum	6/2002	200
National Educational Computing Conference	Interactive Web-Based Student Curriculum	6/18/2002	125
NECC Roundtable	Creating Tech Leaders through PD	6/2002	7
NM State Learning Conference	Making A Difference: The Impact of RETA Professional Development	6/12/2002	6
NM State Learning Conference	Interactive Web-based Curriculum	10/12/2002	4
iNET	MarcoPolo Internet Content for the Classroom	1/6/2003	3
iNET	Interactive Web-based Curriculum	1/6/2003	9
iNET	Palm Awareness Session	1/6/2003	8
Texas Computer Education Association Conference	Interactive Web-Based Student Curriculum	2/6/2003	75
TCEA	Technology Integration for Staff	2/2003	75
SITE Conference	Web-based Professional Development for Teachers: A Process Approach	3/28/2003	12
TOTAL			524

TECHNOLOGIES USED
Computers
Assorted Software
Internet
Palm Pilots
Margi Presenter To Go
Video InFocus
Laptops

Santa Fe Community College RRC

OVERVIEW	2002 - 2003
Total Number RRC Workshops	21
No. Primary Participants	150
Est. Secondary Impact	265
No. RRC-based sessions	2
No. District-based sessions	19
No. NM Districts Served	3
No. Partnerships	5
No. Conference Presentations	5
Other	

PARTICIPANT CATEGORIES	2002-2003
Inservice teachers	80
Educational Assistants	8
Secretaries	4
Administrators	20
Preservice teachers	0
College Faculty	2
College Students	15
Parents	0
Students	20

PARTICIPANTS' GRADE LEVELS	
Pre-Kindergarten	0
Kindergarten	2
Primary	20
Secondary	130
Special Education	8
Ungraded	20
Grades Unknown	36

WORKSHOP TOPICS	2002 - 2003
MarcoPolo Internet Content For The Classoom	2
Claymation	3
Excel: Schoolhouse Data Analysis	6
WebQuest Lesson Development	4
QI Macros	6
GIF Animation/Adobe PhotoElements	2
Introduction to PDA	1
Understanding the Educational Relevance of Neuro-scientific Research	2
Personal Knowledge of Rational Numbers	33
Planning Into Practice: Active Learning Through Technology (SEDL)	17
Introduction to Santa Fe Community College WebCT	2
MS Excel Data Analysis	5

DISTRICT SERVED	2002 - 2003	PARTNERSHIP	NO.YEARS
Bernalillo Public Schools STRT Sixth Grade Math Class BPS/UNM/HP Project	 7 Sessions 5 Sessions 3 Sessions	Yes	4
Santa Fe Schools Technology Personnel	10 Sessions	Yes	4
East San Jose RESPECT Team	3 Sessions	Yes	1
Santa Fe Community College	2 Sessions	Yes	4

CONFERENCE PRESENTATIONS DISSEMINATION ACTIVITIES	TOPICS	DATES	NO. ATTEND
	*Microsoft Excel Tools For Schoolhouse Data Analysis	7/22/2002	25 Teachers and Administrators
	*Understanding the Educational Revelvance of Neuroscientific Research	10/11/2002 10/12/2002	20 Teachers
Southwest Educational Development Laboratory Trainings	Planning Into Practice	11/15/2002	17
State Department of Education, San Juan Community College Dissemination of Information	No Child Left Behind Act	9/13/2002	7
New Mesxico Network for Education Center: Fall Share	Creating Mental Model of Fractions	10/31/2002-11/1/2002	10

TECHNOLOGIES USED	
CD ROM	Computers
Email	Personal Digital Assistants
Videos	Digital Still/Movie Cameras
Internet	Microsoft Office Suite
Inspiration	QI Macros

Western New Mexico University RRC

OVERVIEW	2002 - 2003
Total Number RRC Workshops	14
No. Primary Participants	121
Est. Secondary Impact	2000
No. RRC-based sessions	30
No. District-based sessions	100
No. NM Districts Served	5
No. Partnerships	5
No. Conference Presentations	1
Other	

PARTICIPANT CATEGORIES	2002-2003
Inservice teachers	42
Educational Assistants	53
Secretaries	4
Administrators	22
Preservice teachers	
College Faculty	
Parents	
Students	

PARTICIPANTS' GRADE LEVELS	NO. OF PARTICIPANTS
Pre-Kindergarten	6
Kindergarten	
Primary	57
Secondary	26
Special Education	4
Ungraded	28
Grades Unknown	

WORKSHOP TOPICS	2002 - 2003
Microsoft Word	19
Microsoft Excell	22
Microsoft Power Point	23
Palm Pilot	8
Inspiration	20
Adobe Acrobat	8
Adobe Phot Shop Elements	6
Adobe Live Motion	6
Adobe GoLive	6
Outlook Express	10

DISTRICT SERVED	2002 - 2003	PARTNERSHIP	NO.YEARS
Silver City	12	Yes	5
Cobre	36	Yes	5
Deming	44	Yes	5
Lordsburg	18	Yes	5
Animas	12	Yes	5

CONFERENCE PRESENTATIONS DISSEMINATION ACTIVITIES	TOPICS	DATES	NO. ATTEND
NM State Learing Conference	Inspiration		20

ETHINIC CATAGORIES	NUMBER OF PARTICIPANTS
Anglo	43
Hispanic	57
Asian	1
Other	

PROFICIENCY LEVEL	NUMBER OF PARTICIPANTS
Beginner	14
Intermediate	88
Advanced	19

TECHNOLOGIES USED
CD ROM
Email
Computers
Digital camera
Handheld computers

Northern New Mexico Community College RRC

OVERVIEW	2002 - 2003
Total Number RRC Workshops	53
No. Primary Participants	387
Est. Secondary Impact	63
No. RRC-based sessions	18
No. Other field session ie NMSDE tech workshops	2
No. District-based sessions	24
No. NM Districts Served	32 (Estimated)
No. Partnerships	7
No. Conference Presentations The State Learning Conference, NMSDE; The Network of Champions, NMSDE	2

PARTICIPANT CATEGORIES	2002-2003
Inservice teachers	211
Educational Assistants	8
Administrators	97
Preservice teachers	61
College Faculty	5
Parents	5
Students	0

PARTICIPANTS' GRADE LEVELS	
Pre-Kindergarten	Participants did not specify
Kindergarten	Participants did not specify
Primary	148
Secondary	63
Special Education	Participants did not specify
Ungraded	N/A
Grades Unknown	N/A

WORKSHOP TOPICS 2002-2003
MarcoPolo Website
ACT Now Online Training and Assessment
Teaching and Learning with Microsoft Website
No Child Left Behind Technical Workshop- New Mexico Highlands University and Northern New Mexico Community Colleg
Espanola and Pojoaque Administrator Palm Pilot Basics
Microsoft Power Point XP
Northern New Mexico Educational Technology Consortium – Meetings and WebCT Environment
Kidspiration
Inspiration
NM Gates Leadership and Technology Technical Liaison Technical Support
Tech Summer Camp I –1 week session including RETA Modules and Microsoft XP Suite
Tech Winter Camp II –1 week session including RETA Modules and Microsoft XP Suite
Espanola and Pojoaque Administrator Training- Microsoft XP Suite

TECHNOLOGIES USED
CD ROM- RETA training tools, Teaching and Learning with Microsoft
Software- Microsoft Suite 2002/XP, Kidspiration, Inspiration, Palm Desktop Software, QI Macros, ACT NOW Plug In Software
Internet – RETA Online Modules,MarcoPolo Website, George Lucas Education Foundation Website, Teaching and Learning with Microsoft Website, ACT NOW Website, WebCT, Centra,Email

DISTRICT PARTNERSHIPS 2002 -2003
1. Espanola Valley Schools- for 4 years
2. Pojoaque Valley Schools-for 4 years
3. Mora Independent Schools-for 4 years
4. Chama Valley Independent Schhols-for 4 years
5. Penasco Independent Schools-for 4 years
6. McCurdy Schools- for 6 months
7. San Ildefonso Day School-for 6 months

Eastern New Mexico University RRC

	2002 - 2003
Total Number RRC Workshops	25
No. Primary Participants	500
Est. Secondary Impact	10,000
No. RRC-based sessions	20
No. District-based sessions	5
No. NM Districts Served	14
No. Partnerships	3
No. Conference Presentations	6
Website Resources and Hits	23,654

PARTICIPANT CATEGORIES	**2002 - 2003**
Inservice teachers	85%
Educational Assistants	10%
Secretaries	
Administrators	4%
Preservice teachers	4%
College Faculty	2%
Parents	
Students	

PARTICIPANTS' GRADE LEVELS	
Pre-Kindergarten	20%
Kindergarten	20%
Primary	25%
Secondary	35%
Special Education	10%
Ungraded	
Grades Unknown	

DISTRICT SERVED	2002 - 2003	PARTNERSHIP	NO.YEARS
ENMERC	5	Yes	3
Clovis	2	Yes	3
Roswell	2	Yes	3
Portales	1	Yes	3
Melrose	1	Yes	3
House	1	Yes	3
Lovington	2	Yes	3
Loving	2	Yes	3
Floyd	1	Yes	3
Logan	1	Yes	3
Tucumcari	1	Yes	3
Texico	2	Yes	3
Grady	2	Yes	3
Elida	2	Yes	3
NMMI	2	Yes	3
Gateway	2	Yes	3

CONFERENCE PRESENTATIONS DISSEMINATION ACTIVITIES	TOPICS	DATES	NO.ATTEND
State Conference	Walk the Talk	October 2003	24
State Conference	Cowboy Unit/RETA	October 2003	22

TECHNOLOGIES USED	
CD ROM	Yes
Email	Yes
Videos	Yes
Dazzle	Yes
Palms	Yes
Projectors	Yes
Palm Projectors	Yes
Burners	Yes
DVD	Yes

New Mexico Highlands University RRC: The New Mexico Highlands University (NMHU) RRC did not report data in this last year, and is no longer in existence.

The RETA Web Site

Over the past five years, RETA program staff and instructors have steadily built the RETA web site into a vast and valuable resource not only for teachers involved in the RETA program, but also for educators in general. Along with the specifically RETA-related materials, the web site provides workshop curricula, educational content and links to educational sites, all of which provide information and materials that can help teachers integrate technology into their teaching practice.

Administrative materials

The RETA program has always made all of the materials necessary to run and participate in the RETA workshops easily available online. The materials available from the RETA web site include: calendars for scheduling the workshops and for seeing where and when workshops take place; forms for taking workshop attendance; a data verification area that allows participants to update their information; information about taking RETA for credit and the course syllabi and templates for completing the necessary assignments; forms for instructors to receive payment, software and reimbursement for travel; stipend forms for participants; workshop evaluation forms; and the pre/post survey used in the evaluation.

Workshop curricula catalog

The RETA program has posted the curricula for all 38 of its workshops on its web site. The curricula are organized thematically and are presented with descriptions of the workshops and additional links to related resources. This not only makes the information easily accessible to instructors who will be conducting the workshops, but also allows RETA participants and other educators to download this material for use with students in their classrooms. Along with the workshop catalog, educators can also download a Thematic Unit Planning Matrix that serves as a tool for documenting how thematic or interdisciplinary units, such as the units in the workshop curricula catalog, address the state content area standards and benchmarks.

Online learning

Now that the RETA program has begun offering online workshops to its participants, the RETA web site provides instructors and participants with tools for helping make these workshops successful. These include an FAQ site that gives information about online educational environments, and specifically about the WebCT and Centra systems, which are the delivery mechanisms used by the RETA program for its online workshops. It also includes a discussion rubric that allows both participants and instructors to understand how to evaluate the quality of online interaction; and versions of 9 RETA workshops designed specifically to be delivered online.

New Mexico education resources on the Web

Over the past five years, the RETA program has developed three extensive web-based educational resources that explore three diverse areas of New Mexican cultural history. Camino Real de Tierra Adentro contains a wealth of information about the historic trade route that crosses through New

Mexico. The web resources provide a wealth of information about the evolution of trade along this route throughout the centuries, and about the many peoples who have populated this geographic area. The Long Walk is a resource that examines this seminal event in the history of the Navajo people, during which they were forced to leave their traditional homelands and walk sometimes hundreds of miles to newly established reservations. The Route 66 resource tells the story of the mythic highway and its significance in the history of New Mexico. All of these resources are freely available to educators to use in their classrooms. They were created in partnership with various cultural institutions, such as the Museums of New Mexico and KNME Public Television, which provided archival photographs and documents, video and other material for use on the web site. The web sites include teacher guides, links to state academic standards and lessons, activities and WebQuests associated with the resources to help make the content usable by teachers. Much of the material is available in both English and Spanish. The site also contains a searchable database, which allows teachers to find student lessons and activities and teacher's guides by content area, grade level, language or lesson type.

Additional links

The RETA web site also provides links to relevant resources for New Mexico teachers, such as a link to the New Mexico State Department of Education, a map of schools districts in the state, the Palm web site, the Gate Leadership 2003 site and the Planet Fifth site, an education resource that presents ideas for using handheld computers in the classroom.

RETA Online

As part of the RETA plan to become self-sustaining, the project's staff began exploring the possibility of transferring some of the in-person RETA workshop curriculum modules to an online environment. The program staff chose WebCT (Web Course Tools) as the application to deliver online workshop sessions. In addition they used Centra (a synchronous application tool) to support this undertaking, and began training RETA instructors in using both applications during its annual Instructor Orientation meeting in the fall of 2002. WebCT provides the online classroom space with bulletin board areas, threaded discussions, syllabi, schedule capabilities, chat rooms, and other assignment areas. The Centra system allows participants and an instructor to log onto a web site and communicate synchronously via print and voice using headphones and a microphone that is connected to participants' computers. The instructor can incorporate a range of multimedia during a Centra session, allowing participants to explore websites, view moving images or uploaded examples of student work.

RETA staff and instructors identified nine workshop topics that were judged to be suitable for the online environment. RETA staff made some modifications to these units prior to the WebCT/Centra sessions so that RETA instructors were able to work from an existing RETA workshop unit. This mirrored the approach used for the in-person workshops.

While many RETA instructors were skeptical of this new technology when first introduced to it, the majority have found it easily adaptable to the RETA workshop approach of technology integration. In general, RETA instructors stated that the online workshops allowed them to convey content to participants in as thorough a way as they might through in-person workshops, however many instructors believed that these online workshops work best for technically experienced educators, and perhaps even better for repeat RETA participants.

> *"The most advanced face to face class could not have built a community of learners that this online experience did, because there are a community of online learners out there that I may not recognize them on the street, we have laughed together, one person lost her 'I' on her keyboard and so she had to use the number 1, so all of us started to use the number 1 instead of the i. We will stay in touch forever, we are all planning in August to do an unveiling of our web pages, so the journey goes on."*
>
> *Second year RETA participant.*

RETA work with administrators

During the past year, the RETA program has collaborated with a Bill and Melinda Gates funded project, the Gates Leadership Training (GLT), through the New Mexico Coalition of School Administrators. The goal of GLT is to help administrators acquire the skills needed to use data to inform instructional and organizational decisions at the classroom, school and district level. RETA instructors and staff provided training and guidance in the delivery of technology, hardware and software to the approximately 75 participating administrators from across the state. Four RETA RRC coordinators and two RETA instructors served as tech liaisons to the participant groups throughout the week. The RETA tech liaisons also presented four hours of basic skills training sessions one afternoon and another three-hour session on using the web as a tool to communicate with stakeholders. During this session participants learned about school web site design and online survey tools. Tech liaisons worked with an assigned group of approx. 12 –18 administrators for the week. Eleven districts from throughout the state participated in the GLT.

In November 2003, four of the Regional Resource Centers provided a one-day technology planning session for administrators and technology coordinators. This workshop was a partnership effort between the New Mexico State Department of Education and the Southwest Educational Development Laboratory (SEDL).

Five RRCs provided professional development workshops for approximately 100 administrators in districts throughout the state. Each RRC received twenty to twenty-two Palm Pilot packages consisting of m500 Palm Pilots, a collapsible keyboard, and a case. These were used as incentives to interest administrators in participating in an ongoing series of technology workshops. The participating administrators committed to attend a minimum of thirty hours of training in order to receive their Palm Pilot kits. Eighteen sessions, equaling forty-four hours of training, have been offered on a variety of topics with participants choosing the sessions that were most interesting and useful to them.

In a focus group held at the end of the year, Las Cruces administrators who participated in the program identified a range of areas where they see their own behavior changing as a result of their participation in RETA related workshops. Many of these shifts in behavior were confirmed through informal interviews with administrators, and interviews with RETA instructors and staff participating in the Administrator training workshops.

Administrators indicated an increased use of technical tools for administrative purposes:

- Electronic calendars to document and plan for school events (such as Palm calendar tools)
- Planning software to map out changes in organization (such as Inspiration)
- PDF file formatting and storage for documents and surveys that administrators would like to see completed by parents or staff

"I've always been gung ho about tech, but this time it was about us, and how to be effective in our job, and be more effective in presenting to parents."

Administrator participating in the NM Coalition project.

Administrators also discussed using technology as a tool to:

- Reach parents during presentations about the school or classroom work that students are engaged in.
- Support parent classes offered at the school.
- Introduce parents to the new and exciting technology available to students.

Administrators discussed the use of Palm technology as a way to take data with them to be viewed and analyzed when they had to leave their office:

"Another thing I did with the palm at the beginning of the semester is put an excel spreadsheet on my palm and could take it around and work on it at places like the dentist's office."

Administrator participating in the NM Coalition project.

Administrators also discussed the role that technology could play in the area of assessment in classrooms. Many indicated that they were looking into, or had purchased, software that would allow teachers to record assessment data on computers or hand held devices, such as the Palm, though many also indicated that the software for these programs was hard to use.

"The M.S. Excel and QI Macros showed our districts patterns and trends for the last three years. The data analysis sessions have been helpful in looking at our district's status."

In addition to discussing the above issues, administrators talked about the many obstacles they encounter in their schools and districts to the successful use of technology on a daily basis including:

- Lack of adequately updated equipment

- Lack of relevant and updated software
- Lack of technical support that is onsite and regularly available
- Lack of funding to support professional development for teachers in use of technology

In general, the administrators participating in these professional development workshops found their participation useful when the focus of workshops addressed their immediate needs: planning, administrative coordination, and communication of information to teachers, parents, and other administrators. Once the administrators were introduced to technologies that could support these activities they became more open to viewing technology as a viable tool for teachers and students in other areas. This development allowed the administrators to become more aware of the needs of teachers using technology, and allowed them to act as advocates for their teachers integrating technology into classroom activities.

RETA partnerships

The staff of the RETA program has made a concerted effort to partner with many programs and institutions throughout the state. This effort was made with the belief that through partnerships the program would be better able to leverage its funding and would be able to broaden its base form which to reach educators. RETA has engaged in partnerships with several smaller-scale professional development efforts that target specific regions and provide customized professional development content through the provision of software and the sharing of instructors across programs. RETA staff has helped in the development of many of these smaller programs, which have been started by active RETA instructors.

In addition to these local partnerships, RETA has recently completed work for the NM SDE on a curriculum unit series for middle and high school students that addresses state standards for instruction in New Mexican history. Because no text books were available that covered the content for this requirement the state chose to work with the RETA staff to develop a series of modules that would be available online and via CD-ROM to schools. These modules present content in a multimedia format that meets state standards and allows teachers and students access to a greater range of resources than they might otherwise have available.

Other institutions or programs with which RETA has established partnerships established during year 5 include:

- Three programs supported by the Enhancing Education Through Technology (E2T2)
  - TIA RETA
  - E2T2 partnership with College of the Southwest
  - Española E2T2
- Office of Distance Education at New Mexico State University

- New Mexico Reading First
- Several school districts across the state
- Institutions of Higher Education that support three remaining Regional Resources Centers
- Southwest Educational Development Lab

RETA in transition

> *"We're looking at things like having a certificate program for teaching online, we're just looking at where the interest is: palm technology, online technology" "We're just looking at what is going on in the state and trying to respond to that need."*
>
> *Dr. Gonzales, Project director*

The greatest challenge to the RETA program this year has been sustainability; the task of developing a sustainability plan for the program, and the transition to a self-sustaining effort.

This transition has been eased somewhat by the success that RETA has experienced in collaborating with a number of programs, organizations and school districts during the past several years, and by the support of the RETA instructor network, which has been instrumental in developing the RETA fee-for-service model and in recruiting future sites and participants for RETA workshops.

The sustainability plan that RETA has adapted is based on developing professional development delivery partnerships with school districts. The program has received an award of $500,000 from the New Mexico state legislature to support its infrastructure and ongoing professional development activities. RETA staff have established a fee scale for services that can be contracted for with districts or schools interested in professional development workshops for teachers or administrators. The fee that a school or district pays is kept to a minimum through matching with funds from the legislative grant.

The program also hopes to continue many of the professional development activities that have enabled the RETA instructors to extend and expand their technical skill and professional development expertise through collaboration with its current partners the E2T2 grants and the Reading First program. Each of these efforts will enable the RETA instructor network to continue collaborating among themselves and with peers and will provide the context for new learning opportunities regarding the roles of technologies in schools.

RETA participation in technology and education policy

The RETA program continues to be active in various committees and in making presentations to the state legislature as well as providing information to legislative committees. RETA has also benefited from having several RETA participants move into positions within the New Mexico State Department of Education office of Curriculum, Technology and Instruction. The New Mexico State Department of Education has continued to look to the RETA program as a model for reaching educators with quality professional development across the state, and has incorporated RETA into recent large-scale education efforts such as the state-wide Reading First program, and the curriculum development effort supporting state standards regarding the teaching of New Mexico's history.

CHALLENGES AND OBSTACLES

Recruitment

The recruitment of teachers to participate in the RETA program has been a challenge from the beginning. Two issues comprise the recruitment challenge: First, insuring that the teachers who arrive at the workshops are there because they have chosen to attend and not because their principal or superintendent has decided to send them. Second, figuring out a way to reach teachers with accurate information about the RETA program and what it offers.

Early on the RETA program was faced with the difficulty of having teachers "sent" by their administrators to attend workshops. Generally, instructors found that these participants lacked access to a computer and were unable, and, at times unwilling, to follow through with RETA activities in the classroom. This situation, paired with the knowledge that teachers (like all people) learn best when they have chosen to learn, informed the decision to require that all participants have access to a computer in order to participate. In addition, RETA staff made it clear to administrators that teachers had to come voluntarily.

While this addressed some of the recruitment issues, it did not address the difficulty RETA staff had in disseminating material directly to teachers. Generally, the dissemination path leads directly to a principal or other administrators office where flyers or other material sits un-opened. The staff has worked to inform schools teachers in the communities where they work, and the RETA instructors have been active in disseminating information about the program, but this issues remains a difficult one.

Development of a RETA business plan for sustainability

Transition from being well-funded program to being a business that relies on fees for services provided has been one of the greatest challenges the program has faced during the last five years. One of the greatest difficulties RETA staff find themselves faced with is the need to think about and plan for a business model to sustain the project, a task that is has not been easy for highly skilled educators with little training in business model development.

A difficult component of this transition will require the adjustment of participant expectations regarding what the RETA program can offer. As the program's federal funding comes to an end, the program will no longer be able to offer stipends for teacher participation and will likely not be able to offer the software packages that most teachers have come to expect from the RETA program. Adjusting participant expectations in these areas will likely take some time and work on the part of the RETA staff and the program's instructors.

The online modules

The RETA program experimented with a series of online modules during this past year and required all RETA instructors to lead at least one workshop via the online service, Centra. Program staff agreed that many instructors were not comfortable with the online system and that there were

many technical obstacles to overcome regarding school and personal firewalls and other access issues; however, there is general agreement to use the program again next year with several new steps in place for insuring a more successful implementation:

Online participants will be screened to insure that they have adequate access and no firewall issues.

Online participants will be required to participate in an online "boot camp" where instructors will take participants through a series of activities online during the course of a week to familiarize them with the way in which the Centra system works and to increase participant comfort with the online environment.

During the past year nine modules were offered. During the coming year some of these will be removed from the online roster based on feedback from instructors and participants, and two to three new ones will be added based on recommendations from the RETA instructor group and on interest from school districts contracting for professional development services.

Ownership of technology

Issues concerning ownership of technology and software for teachers and schools has been ongoing and has remained unresolved. One of the benefits for teachers who have participated in RETA was the distribution of the software that was covered in the RETA workshops. Microsoft office, Inspiration, Kidpix, desktop publishing software, and other software packages were made available to all participants, significantly increasing the compensation participants received when a monetary value (approximately $700 at retail prices) was added to teachers' participation stipends. The RETA program expectation was that teachers would own this software and would be able to load it onto their school computer for classroom use, or on their home computer, or both depending on the licensing arrangement for particular software packages. However, many schools or districts have school-wide policies that prohibit a teacher from loading software onto a school computer, and many also have requirements that all software or hardware received by a teacher in a teaching capacity is the property of the school and not the individual teacher. While the rational behind these types of requirements is clear, they also contradict one of the foundations on which the RETA model is built. The RETA program's intention was to build ownership among teachers of the technology they have access to by allowing teachers to incorporate technology tools into their personal and professional lives. The premise of the RETA model is that once teachers begin to see the value of technology in their personal lives they will more easily and quickly make the transition to using technology as a tool in their classroom and in students' lives.

This issue is still unresolved and continues to emerge with RETA's new partnerships. In particular it has become a debated issue within the Reading First program, where teachers were issued Palm Pilots to use for student assessment. Many school staff saw the Palm Pilots as school property to be assigned to different teachers based on administrative needs; however, the Reading First and RETA trainings for these teaches implied that the Palm Pilots would belong to the teachers for the

full school year, though after that they would likely be returned to the school.

Participant attrition

A consistent challenge throughout the RETA program has been workshop participant attrition. The staff have tried to address issue in a number of ways including limiting participants to those who have some access to technology so that teachers will a place to implement or practice what they learn in RETA and therefore have more motivation to participate; require that participants volunteer to participate rather than get assigned to the workshops by a supervisor; and require that participants attend all sessions (or take make-up sessions) in order to receive their stipend. The greatest factor in the attrition rate seems to be the time commitment necessary to participate in RETA – many educators are simply unable to attend a full day workshop for six Saturdays and many drop out because of family conflicts, such as sports events, or personal issues. The project has looked into alternate scheduling patterns for the workshops – one school is conducting workshops during two four-hour sessions after school each week. Others are moving to more online courses. A solution to this issue has not yet been identified.

Continuing professional development

A significant concern for program staff is the lack of resources available to continue to provide professional development workshops for instructors. RETA has consistently provided these workshops, which have helped to insure some consistency among instructors regarding presentation of materials and knowledge about the technology. It is possible that through its many partnerships the program will be able to engage in some joint professional development activities, but the expectation is that these activities will be considerably curtailed.

Student impact

An important issue for the RETA program is how to document student impact in a program that is focused on teachers' professional development. The approach of supporting the integration of technology across all curriculum areas demands that students be assessed in all areas where technology is being used, yet this is not always possible. Developing a viable method for measuring student impact in one or more areas as a result of this project is of great interest to the project staff.

THE RETA PROFESSIONAL DEVELOPMENT MODEL

The RETA program is designed to reflect a holistic approach to the technology change process in schools. This approach includes careful and strategic thinking about the role technology can play in classrooms from all perspectives: the classroom, the school administration, the district administration, the pre and inservice perspective, and the policy perspective. The RETA model is the product of a combined vision of the program's current director, its original founders and the network of RETA instructors who have developed a sense of ownership of this effort and who view its growth and development as a responsibility of the group.

This systemic approach is echoed in findings described by Culp et al. (2003) who state:

"We have learned that when student learning does improve in schools that become technology-rich, those gains are not caused solely by the presence of technology or by isolated technology-learner interactions. Rather, such changes are the result of an ecological shift…"[21]

The RETA program's charge included only the support of technology integration for teachers in K – 12 classrooms; however, its staff realized that to effectively introduce technology the program would have to look at the whole, and not the isolated circumstance of a computer lab or station in a room. This approach has lead to the development of a program that attempts to take into account all the circumstances that influence teacher practice, and where possible has made an effort to address these circumstances in order to assist teachers in making the best use of technological tools.

The RETA program includes the following components:

Teacher professional development workshops:

- Workshops include 6 eight-hour sessions delivered on Saturdays within a geographic region
- Teachers agree to attend all sessions in order to receive a $100 stipend and software.
- Teaches may sign up for undergraduate credit for a fee from New Mexico State University.
- Teachers are assigned to workshops groups based on their location and, when possible, are grouped by teaching assignment: teachers of younger students or older students are grouped together.
- Teachers in a workshop have some say in selecting the workshop content and choose from an array of workshop modules developed by RETA instructors.
- Teachers spend Saturdays working in a school computer lab trying out software and hardware and completing shortened versions of modules they can implement with student.

[21] Culp, Honey, and Spielvogel, "Local Relevance and Generalizability: Linking Evaluation to School Improvement" in Haertel, G and B. Means (Eds) Evaluating educational Technology: Effective Research Designs for Improving Learning. New York, Teachers College Press, 2003.

- Teachers have access to two RETA instructors during each workshop session.

The RETA instructor group:

- RETA instructors are all current or former classroom teachers and most have been RETA teacher participants before becoming RETA instructors. In this way RETA works as a "train the trainers" model.
- RETA instructors are compensated for the full 8 hours of work for each day of the 6 day workshop, and also receive travel reimbursement as well as coverage of any costs incurred in preparation for workshops such as photocopying of materials.
- RETA instructors are paired with a partner. This partner may be an apprentice instructor (one who is acting as an instructor for the first time) or may simply be another instructor available in that geographic region.
- RETA instructors are expected to attend two three-day workshops, one at the end of the school year to "debrief" on the year's project activities, and one at the beginning of the year to introduce instructors to new curriculum materials, new technology or other information addressing issues of pedagogy and classroom practice.
- RETA instructors are given opportunities to attend additional trainings in new applications or new hardware.
- RETA instructors are reimbursed for travel and compensated for their time for the required fall and spring meetings, and when possible are compensated for other professional development activities.
- RETA instructors receive hardware including a laptop computer and Palm Pilot for personal use, and also receive all software packages that are used in RETA modules.

From the beginning the RETA program was conceived as a teacher-to-teacher model. It was developed in response to a perceived lack of service being delivered to teachers who were geographically disconnected from the standard reach of professional development efforts, and it addressed an area that, in 1995, was not well represented in teachers' professional development experiences. The early staff of the RETA project believed that a successful professional development effort would have to be one that was relevant to teachers as classroom practitioners and as members of communities that were diverse in their home language, and culture. The concept of a Regional Educational Technology Assistance program was born with the expectation that educators in local communities, districts, or regions of the state should and would take a level of ownership of this effort. Accomplishing this goal while still providing consistent, quality professional development that meets teachers' needs and supports their growth, has been the driving force behind this initiative.

From its inception the program has been housed at the school of education at New Mexico State University in Las Cruces. For the duration of funding from the U.S. Department of Education, the program has partnered with a Local Education Agency, Gadsden Independent School District, and has worked to serve teachers in the southern-most region of the state through this and other partnerships. The RETA program staff includes administrative and technical support to insure well-organized and timely delivery of workshops, delivery of software and hardware when appropriate, and development of a wide array of curriculum materials that support the integration of technology for grades K – 12.

Below are some of the key factors that the RETA program has incorporated to create a successful state-wide professional development effort offering quality, long-term professional development to often underserved communities, and supporting a strong and active state-wide network of advocates for technology and education within their communities.

Developing a network of educators across the state

From its inception the RETA program included the development of a network of technology-savvy educators as one of its goals. Creating a network that included educators from all regions of the state and that represented, both ethnically and linguistically, the diversity of the state was seen as a crucial component in the development of a program that would truly be able to reach out to the range of education communities that make up the New Mexican education landscape. Educators acting as RETA instructors were immediately provided with contact information for peer instructors and were included in regular email updates about the program's development, about new developments in both hardware and software that instructors were using when presenting RETA workshops, and about the changing education landscape with regard to technology at the local, state and even national level. RETA Instructors were electronically connected to the RETA project through a listserv that was used by RETA staff as well as participants to post relevant information to peer instructors. Instructors also had access to the RETA web site, which was used both as a dissemination tool and as a workshop planning and management tool. RETA instructors were also invited, via the electronic lists, to attend additional training events where they would be introduced to new developments in hardware or software during in-person meetings. In addition to these uses of technology to support these educators in becoming an active network, the RETA program incorporated two yearly in-person meetings where all RETA instructors were brought together. These meetings enabled the instructors to reinforce their electronic relationships with in-person interactions and helped to solidify the sense of community among these educators.

During the course of this project, this network has grown into a viable network that is used by its members regularly professionally and personally. Many members of this community have moved into positions within the state's Department of Education, or to positions within school or district administrative offices, and these educators are able to provide additional perspectives to those brought to the group by highly skilled and experienced classroom teachers. In addition, many members of the group have relied on each other for resources and guidance in the delivery of

workshops, the preparation of grants for school funding, and the development of curriculum materials. These activities have all evolved as a result of explicit planning on the part of the RETA staff. Throughout the program, staff have been deliberate in their demonstration of collaboration with non-RETA efforts, have been careful to incorporate representation of cultural, regional and linguistic diversity in their choice of content materials, meeting locations, and outside presenters.

Using technology to support educational communities

While the RETA program's primary goal is to provide training to teachers in the integration of technology into classroom practice, its secondary goal was to expand the way in which technology can support all aspects of teachers' lives. Program staff have used technology as a crucial component in establishing communication among educators, encouraging professional engagement for all RETA participants, both novice tech users as well as experienced RETA instructors. The program has developed an extensive website that provides resources: links to educational sites; curriculum units that involve a range of technologies, such as video or digital cameras, computers, scanners, printers, and hand-held computers, and incorporate a wide range of applications from simple web searches to fully web-based curriculum modules. These curriculum units invite students to explore topics represented with moving and still images, with sound and with representations of primary source materials that would not otherwise be available to schools.

By integrating the technology into the make-up of this program, participants are able to recognize the potential uses for technology in their own professional lives and in the lives of their students.

Making connections among educators across schools and districts

Educators participating in the RETA workshops identify the opportunity to spend time talking with and learning from peer educators from schools or districts outside of their own as a very important to their own professional growth. The RETA program's structure encourages collaboration and sharing of information among teachers as an integral part of the workshop experiences. This not only allows teachers to see what takes place beyond their own classrooms, but also invites these teachers to begin considering their educational practice within the context of larger education initiatives.

Creating professional communities of learners

One of the interesting components built into the RETA program from its inception is the delivery of professional development to the instructor group. This group regularly attended in-person meetings for approximately 6 days a year that addressed issues of the presentation of RETA workshop material or aspects of integrating technology into classroom practice, or introduced new hardware or software. Instructors were also engaged in the task of developing and modifying curriculum materials to be used by peer instructors. All these activities allowed the instructor group to develop an expectation that when they gathered they would engage in professional growth-related activities, would likely be discussing issues related to technology integration, and would be engaged in hands-on activities using technology. These activities mirrored those that RETA

teacher participants engage in during workshops and through this process the RETA program staff were able to both model good professional development practice, the expectation that educators continue to grow and learn, and the assurance that all instructors would be exposed to similar experiences with regard to the materials they were responsible for presenting.

Inviting feedback

In addition to creating a professional environment where participating in professional development and engaging in discussions of classroom pedagogy are considered essential to professional growth, the project also modeled the valuable role that ongoing program assessment can play in the development of any initiative. Instructors were asked for feedback and suggestions at the end of each academic year regarding the workshop module quality, organization and administration of the program, issues regarding technical difficulties, issues with participants who drop out, etc. The responses to these and other questions helped the RETA program grow and evolve to meet the changing needs of teachers, but also modeled the process of inviting criticism in order to make positive change.

Other important components of the RETA program:

- Appropriate compensation for professional development activities and delivery.
- Adequate administrative support for program activities such as processing invoices, insuring communication among participants, and the distribution of materials and resources among instructors.
- Technical support (virtual) available anytime, anywhere via the network of instructors who regularly post and respond to questions on the groups' listserv.
- Teacher to teacher professional development providing authenticity to the workshop experiences for participants, and to the instructional support provided by instructors.
- Hands-on experiences with technology, allowing teachers to leave workshops with a sense of how and when to use the technology they have been introduced to, and offering a context within which to learn new skills.
- Curriculum units developed by teachers and for teachers, which is very appealing to educators who state they are overwhelmed with resources that are not always appropriate for the educational setting.
- Integrated lessons through which the RETA workshops present technology within the context of content material so that teachers develop an understanding of how technology can act as a tool to be used to meet the goal of introducing students to new content and experiences.
- Holistic approach to education and its staff work to attend to all the aspects of school and classroom life that influence how and when teachers choose to begin changing their classroom practice.